



P
Med
A

THE
ARCHIVES OF PEDIATRICS
///

VOL. 3.]

JANUARY, 1886.

[No. 1.

Original Communications.

440673
29.11.43

A CASE OF UNUSUAL MALPOSITION OF THE
VISCERA IN A NEW-BORN CHILD.

BY JOHN PHILLIPS, B.A., M.B. CANTAB., M.R.C.P.

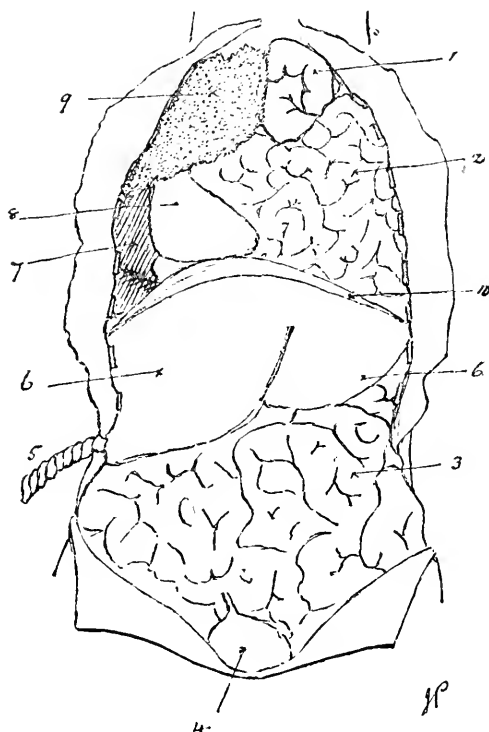
*Physician to the British Lying-in Hospital, Senior Assistant Physician to the
Chelsea Hospital for Women.*

On the 29th of last May I was requested to perform a post-mortem examination on a child which had died twenty minutes after birth, without apparent cause. The arrangement of the viscera was of such a peculiar nature that it appeared to me worthy of record.

The child in question was the third. None of the others had any malformation and were quite healthy; neither was there any family history of deformity on either side discoverable.

The mother experienced a fright two days before the labor commenced, but it was normal in every way, and the child was born at full time. After delivery it gave a few feeble cries, and by dint of artificial respiration was kept in a semimoribund condition for twenty minutes.

Post-mortem Examination.—The body was that of a full-timed, well-formed female child, weighing seven pounds. The abdomen was very flattened, but no malformation could be discovered externally. On removing the chest-wall and opening up the abdominal cavity, the appearance roughly sketched in the figure presented itself; the



Superficial View of Viscera on Opening the Thorax and Abdomen.

1. Large intestine. 2 and 3. Small intestine. 4. Bladder. 5. Umbilical cord. 6. Liver. 7. Right lung. 8. Heart and vessels in the pericardial sac. 9. Thymus gland. 10. Section of diaphragm.

whole of the space usually occupied by the left lung, the heart, and large vessels was filled with intestines; the upper third consisting of large bowel, stained of a greenish brown hue, the lower two-thirds being made up superficially of coils of small intestines of a pinkish white color.

The right side contained at the apex, the thymus gland ; below that the heart and large vessels covered by the pericardium. To the right of these latter and slightly below was the right lung, trilobed, but in a condition of almost complete atelectasis.

On raising the intestines on the left side, the stomach came into view, resting on the convex surface of the diaphragm, with one or two coil of large intestine of olive-green color covering its pyloric end. At its cardiac end was the spleen, and behind and below, the left lobe of the liver could be seen passing through a large congenital deficiency in the posterior part of the left side of the diaphragm. The opening was oval, being three and a half inches in breadth and an inch in its antero-posterior diameter. The edge was quite smooth, the serous surfaces being continuous.

Towards the median line of the thorax, and attached by some fibrous tissue to the vertebral column on the left side, was a small bilobed brownish yellow mass, which proved on examination to be undistended left lung. On removing the pericardium, the ductus arteriosus was found patent, the right pulmonary artery could be traced into the right lung, but a fibrous band represented that going to the left lung.

The brain was normal. The abdominal cavity was occupied by the liver, the remainder of the large and small intestines, and the bladder.

Cases of *transposition* of viscera are rare ; but I have been unable to find a case on record of *malposition* similar to the one described above. The question as to the possibility of the child being born alive with such a condition existing is manifestly an interesting medico-legal problem.

ON HIP DISEASE IN CHILDHOOD.

BY G. A. WRIGHT, B.A., M.B., OXON., F.R.C.S., ENG.

Surgeon to the Children's Hospital and Assistant Surgeon to the Royal Infirmary, Manchester, England.

[CONTINUED FROM PAGE 724, DECEMBER NUMBER.]

DIAGNOSIS.—The diagnosis of disease of the hip is as difficult in some cases as it is easy in others. In well-marked cases where the disease is advanced it usually is quite readily diagnosed, while on the other hand, few diseases are so closely simulated by a large number of other affections as that of the hip, and the variety of symptoms that it presents is in itself a fruitful source of mistake. It will, perhaps, most conduce to a clear understanding of the subject if I first tabulate the diseases for which hip disease may be taken, and the list is not a short one.

1. Chronic rheumatic arthritis, including "*arthrite sèche*," *malum coxæ senile*, osteo arthritis, and chronic rheumatism under this term.

2. Acute rheumatism.

3. "Crippling rheumatism," of Hutchinson, also described by Brodie, though not named, and, like Hutchinson, considered to be a disease allied to gout and rheumatism.

4. Hydrops articuli described by Bonnet.

5. Bursitis of psoas or one of the gluteal bursæ.

6. Ostitis or periostitis of the great trochanter.

7. Periostitis of the upper end of the femur.

8. Sacro-iliac disease.

9. Psoas abscess.

10. Iliac abscess.

11. Gluteal abscess, traumatic or spinal.

12. Abscess connected with disease of the pelvis.

13. Perityphlitic abscess or suppuration around the sigmoid flexure of the colon; pelvic glandular abscess, etc.

14. Superficial abscess, glandular or other, and deep abscess around the joint.
15. Infantile paralysis.
16. Spastic paraplegia.
17. Sprains or old dislocations, or fractures of the neck of trochanter.
18. Syphilitic synovitis or telostitis.
19. Interstitial absorption of bone, traumatic usually or the result of senile change.
20. Hysteria.
21. New growths involving the upper end of the bone or its neighborhood.
22. Sciatica.
23. "Congenital dislocation" of the hip, or other congenital conditions.
24. Rickets.
25. Disease of the knee.
26. Lateral curvature of the spine.
27. "Diastasis," or separation of upper epiphysis of femur (Sayre).

In addition, the special form of hip disease so often associated with pyemia, and known as "acute suppurative arthritis of infants," which has been so well described by Mr. Thomas Smith. Of these, of course, only those affections to which children are liable will be considered in the present paper. Of these I will select only a few of the rarer or less obvious, or of the more important diseases, the rest being sufficiently readily distinguishable.

Bursitis of the psoas bursa is a rare affection which simulates hip disease by flexion of the joint, pain and fulness over the front of the articulation, and impaired mobility; it is distinguished by the absence of pain, or tenderness, or swelling at the back of the joint, and by movements of abduction and rotation, being painless as well as by absence of startings or thickening of the trochanter.

Inflammation of the gluteal bursæ of which that between the gluteus maximus and the great trochanter is the most common. In this case a large gluteal abscess may be

mistaken for abscess connected with the joint, or if the abscess has burst the long track left may lead upwards, and be indistinguishable from one communicating with the joint; the absence of shortening, of adduction, or of grating on movement of the joint which will also move freely, absence of pain on jarring or pressure, and of fulness in front of and behind the joint are additional points. This condition has been commented on by Mr. Teale, of Leeds, in the *Lancet* for 1870.

Disease of the great trochanter is more difficult to distinguish, and it must be remembered that the inflammation may extend from the shaft to the joint, as in the following case:

Annie P. was healthy till she was ten years old, she then had acute periostitis of the femur, the swelling extended from the hip to the knee, abscesses then formed and discharged about the knee, and some bone came away. Later an abscess appeared near the hip, which burst, and from it the head of the bone was discharged. The sinuses finally healed eight years after, leaving her with a flexed knee.

Here clearly the disease began as a periostitis, which involved the hip joint secondarily, and probably by extension of the disease the epiphysial cartilage was destroyed, and the head of the bone separated. This case, so far, resembles Mr. Bryant's case of destruction of the greater part of the shaft and the head of the bone, in this instance a movable limb resulted. On this subject, as well as many others in connection with hip disease, Dr. Gibney's valuable book gives us information.

Although in trochanteric disease sinuses may exist in the same positions that they are often found in morbus coxæ, the smoothness and freedom from grating, as well as the wide range of mobility of the joint will serve to distinguish between the two other abscesses in the neighborhood of the joint; are recognized by their history which is usually too short for chronic hip disease, and not acute enough or sufficiently severe for acute joint inflammation. They are also recognizable by the freedom and smoothness

of the movements of the joint through a certain range, even though that range may be a limited one. Absence of pain and tenderness in some part of the joint circumference will be contributory evidence.

Infantile paralysis simulates hip disease in the lameness to which it gives rise, but is distinguished from it by the absence of pain and swelling, by freedom of mobility, and by an amount of wasting and coldness of the limb disproportionate to the other symptoms of the disease, it is, however, worth noting that in the *British Medical Journal*, for 1877, Mr. Savory records a case of acute hip disease in a leg affected by infantile paralysis. Spastic paraplegia can only be mistaken for double hip disease and resembles it only in the loss of mobility. Old injuries in the neighborhood of joints leave stiffness and deformity, either too great or too slight for the accompanying evidence of inflammation, and a history can generally be obtained incompatible with joint disease.

Syphilitic disease is distinguished by other evidences of syphilis, by the slight tendency there is to suppuration, and by its amenability to mercurial or iodide treatment. I have, however, seen chronic hip disease in a congenital syphilitic child. Interstitial absorption of bone generally occurs too rapidly and too painlessly to be mistaken for hip diseases of the common type, nor is there tendency to suppuration in this affection. Sacro-iliac disease and psoas abscess may both simulate hip disease in the position in which they give rise to pain, and in flexion of the joint; it is, however, only necessary to examine the spine and sacro-iliac articulations, respectively, to find symptoms incompatible with disease of the hip. In a patient, under the care of Mr. Walter Whitehead, there was a history of pain in the groin and lameness for five months before admission. On examination, pressure over the front and back of the hip caused pain, and there was slight pain on movement, but no swelling, no rigidity, and no shortening. Later an abscess appeared over the right sacro-iliac joint, and another upon the thigh four inches lower down, and the case was cleared up.

It must be remembered, at the same time, that the abscess within the psoas sheath, resulting from either of these diseases, may open into the hip-joint, and so a secondary hip disease may be developed. It is not, I believe, very rare for psoas abscess to do so, and although I have only had one opportunity of verifying the fact post-mortem, I have several times believed such to be the case. In 1872, Mr. Gay excised a hip in a man aged twenty-seven years, where the disease was secondary to spinal caries, he removed the trochanter and a sequestrum, the man died seventeen days later. Spinal caries and hip disease may, of course, coexist independently of each other, and this is not rare.

Of sacro-iliac disease extending to the hip-joint I have not seen an instance, though I am informed by my friend Mr. E. H. Howlett, of Hull, that he has once, if not twice, seen this condition, and the converse lesion extending from the hip to the sarco-iliac joint is illustrated among my own specimens. This disease I have seen very closely simulating hip disease, as in the following case:

Abdominal Abscess Simulating Hip Disease.—John Ernest J., aged five and a half, admitted April 11, 1881, discharged July 27, 1881. Elder brother has diseased ankle.

History of Disease.—Four days before admission, stooped in walking, two days later had pain in both hips. The left thigh became drawn up; he cried in his sleep.

Condition on Admission.—Lies on left side. Both knees flexed. Movement of right leg unrestrained and painless. Left thigh semiflexed, partially abducted. Passive movement resisted. Great tenderness all about left thigh and increased heat. No tenderness or curvature of spine. No swelling anywhere.

Treatment.—Extension which brought the limb down and relieved the pain. May 7th an abscess suddenly appeared below the anterior-superior spine of the ilium. This was opened antiseptically and a drainage tube eight inches long passed upwards from it, dressed with salicylic silk.

Did well. June 4th, free mobility.

Result.—July 24th, quite healed; little or no limitation of movement; no tenderness.

Abscess connected with the cecum, or sigmoid flexure, is said to be not uncommonly mistaken for hip disease. I have only seen one case in which I thought the diagnosis doubtful, such cases would closely resemble ordinary iliac abscesses with the addition of symptoms indicating connection with or proximity to the large bowel.¹

Had I not known of three instances in adults, in which the question of diagnosis between a malignant growth of the upper end of the femur and hip disease was difficult to decide, I should have said that it was hardly worth while to point out the distinctions between them. It is here sufficient to point out the diagnostic signs between the two. The absence of distinct abscess, the presence of evidence of growth in other organs, and the absence of adduction or any marked amount of flexion, are the points leaning against hip disease; while pain, swelling, some rise of temperature, slight flexion, marked shortening, and grating may all exist in a case of central sarcoma of the neck of the femur, as in one of the cases referred to, and the presence of the growth may set up secondary inflammatory changes in the joint, and make the diagnosis very difficult. In this case probably there would have been more characteristic deformity had not the spontaneous fracture prevented the abductors, etc., from coming into play.

Congenital atrophy of the femur is not likely to be mistaken for recent disease, but, as perhaps, in the following instance, may be a result of intra-uterine affection of the joint.

Congenital Atrophy of Lower Limb? Intra-uterine Hip Disease.—Emily C., aged six months. Seen as an outpatient, August 5, 1881.

When fourteen days old, it was noticed that her right leg was shorter than her left. When seen there was two and a half inches shortening of the right leg with failure

¹ Paper on some forms of abdominal abscess occurring in children, by the writer, in ARCHIVES OF PEDIATRICS 1884.

of development of the whole limb, mainly of the femur. Child very fat. Some stiffness about the hip but no dislocation.

Query.—Intra-uterine hip disease and consequent arrest of development. When seen three months later there was fair mobility, the child tried to use it and there was no stiffness on passive movement.

Others of this long list are readily excluded in most cases by a little trouble, for example, the age of the patient will often enable us to negative the possibility of certain of these diseases. Children very rarely get chronic rheumatic arthritis or crippling rheumatism. Adults are not the subject of infantile paralysis or rickets.

It is, however, always well to use the "method of exclusion" in doubtful cases, and to bear in mind there is no one symptom pathognomonic of hip disease, but that, as in other morbid conditions, several factors have to be taken into account in forming a diagnosis. *Free, smooth, painless mobility is perhaps the most satisfactory evidence of absence of hip disease.*

Thomas's diagnostic method, so-called, is simply the examination of the joint to ascertain if there is flexion or fixation by a commonly employed plan, and his means of estimating the duration of the disease cannot distinguish between acute and chronic conditions.

(TO BE CONTINUED.)

ON THE DIFFERENT FORMS OF PARALYSIS MET WITH IN YOUNG CHILDREN.¹

BY WHARTON SINKLER, M.D.,

Attending Physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases.

Of the various kinds of paralysis which occur in infancy, the most frequent is infantile spinal paralysis, or poliomyelitis anterior. The latter term indicates the

¹ Read before the Philadelphia Obstetrical Society, October 1, 1885.

pathology of the disease which is an inflammation of the nerve cells in the anterior horns of white matter of the spinal cord.

This affection may come on at any period of life, but it is more often seen in children, and usually at about the age of two years. It may come on in young infants. Duchenne reports one case in a child of twelve days and another of one month, but it is rare to see the disease so early. The children affected are generally strong and healthy, and the paralysis is more or less sudden in its onset.

The second summer, a period always dreaded for children, is the time at which a large proportion of the cases are attacked, and it seems as if teething and hot weather combine to predispose to the disease. Fully two-thirds of the cases which I have seen have been attacked in the summer months, and Dr. Barlow, of Manchester, England, reports that of fifty-three cases in which he noted the time of onset, twenty-seven occurred in July and August.

The affection is preceded by fever of greater or less intensity. Sometimes there is diarrhea and there may be vomiting. If the child is old enough to speak, it complains of pain in the back and limbs. In infants evidences of pain and general soreness are shown on moving or lifting them. Convulsions are rare, and there is scarcely ever any bladder trouble. After a few hours or days of these symptoms there is found to be paralysis more or less complete. Sometimes only an arm or leg is affected, but often all the limbs and occasionally the whole trunk is palsied.¹ In a few days a characteristic feature of the disease occurs, that is the regression of the paralysis from one or more of the affected parts. For instance, if the arm and leg of one side were paralyzed, the child may begin to use the arm while the state of the leg remains stationary, or if the leg alone had been affected, the thigh

¹ The attack is occasionally sudden. The child while at play will fall and be found unable to stand. Sometimes the child goes to bed well and is taken up in the morning paralyzed.

movements return, and the foot and leg below the knee does not improve.¹

Sensation is undisturbed, except at first, when there may be hyperesthesia. Slow improvement now takes place in the parts in which the paralysis has not retroceded after the first few days, and atrophy of the muscles is soon apparent. In fact the whole limb stops growing. One often sees an adult, who has suffered from an attack of anterior spinal paralysis in infancy, with the leg of a child dangling beside a powerful and well-formed limb.

The temperature of the palsied limb is low at all times, but in cold weather it is very much lower than the other parts, and the skin is blue and mottled. The skin seems thickened and adherent to the underlying structures, but there is no tendency to ulceration, and wounds or scratches heal readily.

As before remarked the paralysis is more or less general, but sometimes only a single muscle or group is attacked. The flexors of the foot in this way suffer when no other part of the leg has been affected, or the shoulder muscles may be palsied. The deltoid alone occasionally seems to bear the brunt of the attack. When an isolated group is paralyzed, it is generally difficult to make much improvement. I once saw a child of about eighteen months old who had an attack of poliomyelitis anterior which affected the muscles of the left shoulder alone. She had been taken to a prominent homeopathic surgeon, who had made a diagnosis of fracture of the forearm and applied a splint. A few days later the child was brought to the surgical dispensary of the University of Pennsylvania where I saw her and recognized the paralysis. About two years after this I again saw the patient at the Infirmary for Nervous Diseases, and the paralysis had remained the same.

The skin and tendon reflexes are lowered or abolished in the affected limbs. The electrical reactions of the

¹ Sometimes the regression is complete, all of the limbs recovering. This is rare and I have never met with a case, but Kennedy has described what he calls temporary paralysis, which must be a condition of this kind.

muscles are altered early in the disease. At first response to the faradic current is lost, and later on the galvanic current produces but little muscular contraction except when a powerful current is used. When atrophy has set in, the reaction of degeneration is seen.

Deformities frequently occur, and most of the cases of club-foot we see are the result of infantile palsy. Deformities or contractions of the upper extremities are rare; this disease differing in this from cerebral palsies. The following case illustrates the disease.

CASE I.—I. R. L., aged four years, was seen Nov. 18, 1874. He is an only child and is a robust, healthy looking boy. When fifteen months old he was walking, and, although cutting teeth, was in good health. In July he was attacked with fever and vomiting which lasted three or four days; at the end of that time both legs were found to be paralyzed. He had no convulsions and there was no loss of power in the bladder or rectum. While the fever lasted he seemed to be unconscious, but screamed when handled or lifted. In two weeks the right leg recovered full strength, but the left did not improve, and for a month he was generally weak. On examination no difference was found in the length of the legs, but the left foot is one-quarter inch shorter than the right. The right leg is well developed, but the left is atrophied and cold. There is no muscular power in the left leg from the hip down, except in the flexors of the leg which can be slightly moved. He can walk without assistance, but the left leg is merely swung around, and when he bears any weight upon it there is great recurvation of the knee. Above the knee the right leg is ten inches in circumference. The left eight and one-half inches.

Below the knee the right leg is eight inches and the left six and three-eighths.

Temperature of the right calf 84° . Temperature of the left calf 74° .

Electrical Condition.—No response to the faradic current in the muscles of the left leg and it takes fifty cells galvanic current to cause good contraction.

The exact causes of infantile spinal paralysis are unknown. We only know that certain conditions predispose to it. Of these teething and hot weather are the most conspicuous. Over-fatigue quite often precedes an attack. Sudden chilling of the body is considered by Séguin to be a frequent cause and no doubt it is. The eruptive fevers or whooping-cough sometimes seem to produce the disease.

The *diagnosis* is easy. The absence of head symptoms and facial palsy distinguishes it from a cerebral paralysis, and the features of other spinal palsies are different.

The *prognosis*, as to perfect recovery, is only moderately good. In many cases the most faithful treatment fails to restore the paralyzed muscles. Much depends upon the period at which treatment begins, but in almost every case we can surely expect more or less improvement. We should not despair of making some gain in the most unpromising looking case. Last winter I had under my charge, in the Infirmary for Nervous Diseases, a little boy of five years who had had infantile paralysis at two years. His lower extremities were paralyzed. The gluteal, thigh, and leg muscles were wasted, and he was unable to progress at all except by sitting on the floor "tailor fashion," holding the feet with his hands and rocking from side to side he managed to get about the room. The adductors of the thighs were so weak that he could not bring the knees together when sitting in a chair.

He had a thorough course of electricity and massage for several months, and this, combined with the most determined will to help himself I have ever seen in so young a child, enabled me to send him home, walking without apparatus or even a cane.

In the early stages of the paralysis, after the subsidence of the fever, the treatment should consist of mild counter-irritation to the spine. Ergot and small doses of bromide of potassium should be given internally. Later in the disease iodide of potassium should be given instead of the bromide. When the paralysis is established, electricity and massage are the means to be depended upon.

They must be persisted in for months, or even for years. Internal treatment is of little or no value unless there is some failure in the general health of the child.

Massage, which is of great value in these cases, need not be applied by a trained manipulator, but it is of great advantage if the mother or nurse of the child can see one or two treatments given by a skillful and intelligent masseur. The great point is to combine friction of the skin with deep-seated kneading of the muscles. Immediately after the treatment the limb should be wrapped in heated flannels. Woolen materials should be worn next to the skin. Either galvanism or faridization may be used, but unless the muscles respond to the faradic current it is not of much value. In order to be of benefit it is not necessary to use a very strong current. There being no loss of sensation the galvanic current, if at all strong, is very painful to the child. A weak current applied thoroughly over the surface of the entire limb for a few minutes every day will do as much good as a current which causes energetic muscular contractions applied less often. If the faradic current is used, by all means employ the slow interruption. Apparatus should be applied early in the case. It prevents deformities and enable the child to get about and bring other muscles into play.

Spasmodic paralysis when seen in children is usually of two varieties, the first is of primary spinal origin, and in the other there is a descending degeneration of the cord from a primary cerebral lesion. Sometimes cases are seen where there seems to be a congenital defect in the motor tracts of both brain and cord. In the spinal variety there is seen soon after birth rigidity of the limbs. At first this is only occasional, but as the child gets older every effort to move a limb causes muscular rigidity in it. The child does not attempt to walk until three or four years of age. Then when it is supported under the arms, and it tries to stand or to walk the movements are very peculiar and characteristic. The feet are extended and inverted so that the child rests on the toes. The knees are strongly adducted

and lock together so that the legs become entangled. By degrees the child becomes able to walk with the aid of apparatus or some form of crutch. The mode of progression is then by a series of jerks and there is a tendency to fall forward. The hands and arms are often affected and every effort causes muscular rigidity to come on. The mind is unaffected in these cases, and the speech may be distinct although it is often very defective.

If we examine the patella reflex in these cases, we find that a slight tap on the patella tendon will cause violent jerks of the leg—knee-jerk as it is often called. The ankle clonus is also present. Sensation is unimpaired and there is no wasting of the muscles. By these symptoms we infer that the disease is localized in the lateral columns, but exactly what is the nature of the lesion we do not know for no post-mortem examinations have been made in these cases.

The cause is unknown. Hamilton found that three of seven cases which he had collected were premature births. Adherent and contracted prepuce has been thought by some to be a reflex cause of the spasmodic paralysis. Many a prepuce has been clipped with this theory in view, and I must plead guilty to having added a few to the number of foreskins thus sacrificed. I have never seen a case in which I could see the least relief to the spasmodic contractions from the operation.

In some cases the disease comes on in a child who has walked, and has been perfectly healthy, as, for example, in the following case:

CASE II.—George W., aged five and a half years, applied for treatment at the Infirmary for Nervous Diseases, June 16, 1884. His parents are healthy, and he has always had good health until the present illness. Never had convulsions. About Christmas, 1884, he became restless and uneasy, and worms being suspected he was given a vermifuge with the result of several worms being passed; soon after this it was noticed that there was weakness and stiffness of the legs. The right leg was first affected and soon after the left. The difficulty of walking progressed

gradually until in four or five months he could not walk at all.

When first examined, marked stiffness of the legs on voluntary effort was observed. If an attempt was made to put him on his feet, both legs became rigid, the feet were in the position of equinus and were turned inwards.

Sitting him down in a chair the legs remained extended, and gradually became flexed. The sensation was good. Patella reflex greatly exaggerated and ankle clonus marked. The spine less straight and there was no tenderness on pressure. The arms were unaffected and the mind was bright. The nutrition of the limbs was fairly good.

There was no incontinence of urine but great irritability of the bladder. The foreskin was long and the least irritation of the penis caused an erection. The lips of the meatus were red. Circumcision was advised, and was performed by one of the surgeons at the hospital. The urine was examined and found normal. The little patient was in the house for three or four months and was not at all benefitted. Indeed he steadily grew worse.

This was probably a case of primary sclerosis of the lateral columns of the cord. The cause could not be determined.

This form of spinal paralysis is readily diagnosticated from infantile spinal paralysis by the stiffening of the limbs whenever a movement is attempted.

The treatment should consist in massage, galvanism to the spine, ergot and cod liver oil. The fluid extract of conium may be given for the spasms of the limbs.

Often nothing seems to be of any benefit to the case, but I have seen cases in which great improvement took place. Even when we can do no positive good to the limbs very much can be affected by the aid of apparatus. Properly adjusted braces to the legs will enable a child to walk on crutches or in a Darrach wheel crutch. This apparatus is a most admirable device in assisting children who have had paraplegia to walk. It gives them confidence to use the legs and is a preliminary step to crutches.

There is a form of spasmodic spinal paralysis in which the child is imbecile. In these cases there has probably been congenital defect in cerebral development. The head is small and there is no evidence of intellect, often nystagmus is present. Dr. Keating described a number of these cases in a paper read before the Philadelphia County Medical Society.

Paralysis from Pott's Disease.—Paralysis of the lower extremities may result from caries of the spine. The lesion may be either a meningitis or a myelitis. If meningitis alone, there is considerable pain and contraction of the legs. Generally there is a transverse myelitis. The symptoms are numbness and pricking of the legs and loss of sensation, gradually increasing loss of power with wasting of the muscles. Incontinence of feces and retention or incontinence of urine may be present, and sometimes there are ulcers about the sacrum or on the limbs.

The indications for treatment are evident, an apparatus which will take the weight of the body from the spine is necessary and often is sufficient of itself. Frequently, however, the application of the actual cautery over the spine brings improvement in the symptoms when an apparatus has done no good. Massage and electricity should be used to restore the atrophied muscles.

The *Paralysis from rickets and diphtheria* is seldom complete. The former is often spoken of as the pseudo-palsy of rickets. Negro children who are very subject to rachitis, in cities, often have rachitic paralysis. The child at three or four years is unable to walk or stand, sometimes it has not sufficient muscular strength to sit up. It can move every limb and has no loss of sensation, but has not power to make any but very feeble movements. It has all of the other characteristic features of rachitis. Cod liver oil and massage bring about the most satisfactory results in these cases.

The disease is not confined to colored children. I have seen a number of white children who have had marked loss of muscular power in connection with rickets and who improved rapidly under cod liver oil and massage.

Diphtheritic paralysis usually begins in the muscles of the soft palate and pharynx and extends to the extremities. It is most often bilateral and incomplete, but I have seen a case in which it was hemiplegic. The paralysis of the throat muscles is one of the gravest symptoms. It allows regurgitation of liquids through the nose and interferes greatly with swallowing. The eye muscles are sometimes affected—ptosis or squint may occur. Deafness sometimes may be found in connection with the other troubles. The paralysis is considered peripheral in character, is believed by some to be connected with the altered condition of the blood which belongs to the original attack of diphtheria. There is a difference of opinion as to whether the paralysis is most likely to follow severe attacks of diphtheria. Diphtheritic paralysis is rarely fatal and lasts in most cases only a few weeks, although it may continue for months. Strychnia and electricity are the means to be employed, and the case usually responds promptly to these remedies.

Pseudo-hypertrophic paralysis is a rare affection, but is of much interest. The disease is characterized by muscular paralysis with great increase in the bulk of the muscles. This enlargement of the muscles is due to substitution of fatty substance for the muscular tissue, so that while apparently hypertrophied, in reality the muscles are greatly atrophied.

The affection begins with weakness of the legs with a peculiar balancing of the trunk and widening of the legs in walking. There is curvature of the spine in standing and walking, so that a line dropped from the neck to the heels falls clear of the sacrum. This is due to weakness of the erector spinal muscles. The loss of power in these muscles causes difficulty in getting from the sitting to a standing position. If a child is told to sit on the floor, and then to get up on his feet without aid, his manner of doing so is characteristic of the disease. The little patient first turns over, then gets on his hands and knees. He now raises one hand to the knee, steadies himself here, and brings the other hand up to the knee on that side, so, as it were, by climbing his own legs he brings himself into the upright position.

At this time the hypertrophy of the limbs is marked, but as the disease progresses and the upper extremities become affected the muscles become wasted and shrunken. The loss of power is greater and extends to all of the muscles of the trunk and extremities. The general health which had seemed excellent, begins to suffer. Finally, after several years the patient reaches a condition of utter helplessness, and dies from implication of the respiratory muscles or of some intercurrent disease.

The surface of the skin presents a peculiar appearance. It is mottled like a piece of Castile soap, the color varying in different cases, sometimes there are bright red and sometimes purplish patches alternating with white. The tendon reflexes are abolished and electro-muscular contractility is impaired.

There is often a greater or less amount of mental weakness. There is no loss of power of the bladder or rectum, and the sensibility of the skin is unaffected. Hereditation influences the production of the disease. All writers on the subject have reported numbers of cases in which one or more relatives were affected with the same disease.

The disease is slow in its progress; many cases lasting for years, but the course is steadily downwards, except, perhaps, for a year or two in the beginning when it is stationary. A characteristic case was treated in the Infirmary for Nervous Diseases several years ago.

CASE III.—Robert P., aged eight years. Mother died of cancer and the father has had syphilis. Brothers and sisters healthy. When he began to walk, his gait was unsteady and it has grown worse. He is a stout hearty looking boy, good complexion. Height three feet nine inches, weight forty-five pounds. There is an anterior curvature of the spine and the abdomen is prominent. Circumference of waist twenty and a half inches. Arms normal, but the legs are enormous in proportion to the rest of the body. The surface of the legs is mottled. Largest circumference of thigh thirteen inches; largest circumference of leg ten and three-eighths

inches. When asked to lie down, he throws himself forward on the hands and then faces to the floor. To raise himself he first gets on his elbows, then on the hands, next, by successive efforts, he draws his feet up under the pelvis and rests on the feet and hands. Now he places the hands alternately on the knees, then on the thighs, and finally by a great effort draws the body erect.

In walking he spreads the legs wide apart, plumps the feet down and rolls from side to side. There is no loss of sensation and the electro-muscular contractility is unchanged. Seven months after the first examination the greatest circumference of the thighs was fifteen and seven-eighths inches, the greatest circumference of the legs was eleven and one-half inches. Two or three years later the loss of power was such that he could not walk, and the limbs had become small and shrunken.

The treatment should consist in electricity and massage with arsenic given internally. Duchenne reports two cases which he cured with electricity.

Friedreich's disease is still more rare than the preceding affection. I have recently reported two cases of it.¹ It is practically locomotor ataxia in childhood. Friedreich has reported a number of cases in which the disease was hereditary or occurred in a number of the same family. The female members of a family are most prone to suffer. There are seldom the lancinating pains which are so common in the ataxia of adults, but there are absence of patella reflex, unsteadiness of gait, incoördination of movements, most marked in the dark or when the patient's eyes are shut, but no actual inability to stand with the eyes closed. Disturbance of the bladder is rare. Muscular atrophy, paresis, and contractures occur in the last stages. The disease may last for years, and after death, changes similar to those in locomotor ataxia are found in the posterior columns of the cord.

Cerebral Palsies.—Hemiplegia may result from some injury at the time of birth, either from the forceps or from the pressure of a prolonged labor. Sometimes a

¹ American Neurological Society, Medical News, July, 1885.

child is born hemiplegic after a perfectly natural and easy labor. Under these circumstances we must regard the paralysis as the result of some imperfect cerebral development, or of a lesion which has occurred during intra-uterine life. Hemiplegia under these circumstances is generally permanent during life. The side affected grows less rapidly than the other, although there is not the same difference in development as there is in the spinal paralysis. The flexors of the arm and hand are usually contracted, and if there is some power of movement of the arm, it is awkward and ataxic. The leg, too, is stiff and becomes more rigid in the act of walking.

Convulsions are almost always associated with cerebral hemiplegia, either immediately preceding the attack or occurring afterwards. Sometimes a child apparently perfectly well is seized with a convulsion, and is found afterward to be hemiplegic.

CASE IV.—Morris Sullivan, aged twelve months, was sent to me by Dr. Randall, of Jenkintown, Pa., September 8, 1885, one of two children, the other thirteen months older and perfectly healthy. Parents healthy. At birth very small and puny, and for the first day seemed very weak. At six weeks weighed only eight pounds, but after this improved and was well and strong up to present attack. Nursed at breast. Creeping at eleven months and saying mamma and papa. About two weeks ago he seemed ailing, was cutting upper incisors, and had a little diarrhea, but not much, seemed strong until one day two weeks ago, while sitting on the floor he fell over, and afterwards was very heavy and sleepy. For nearly twenty-four hours continued in a deep sleep and could not be roused except to nurse. Mother then noticed that the right side was powerless. Six days later he had two convulsions. The right side of the face twitched. Four days later, Friday, September 4th, he had many convulsions, they occurred every half hour during the day.

Present condition.—Well nourished, but pale. Has six teeth, gums not swollen. Fontanelle open but no signs of rickets. There is complete paralysis of motion of the

right side. Face drawn to right side a little. Sensation unaffected.

Patella reflex was marked; has not attempted to talk since first attacked; heart sounds normal; appetite good; no vomiting; bowels a little loose; passes urine very often.

He has been taking iodide and bromide of potassium; ordered ext. ergot. fld. gttv. t.d., and emulsion of cod liver oil.

September 12th, had a return of convulsions yesterday. To-day has had eight or ten spasms. During the spasm the right arm and leg are violently convulsed. The leg and arm remain rigid. The eyes are staring open and he seems to see nothing; takes the breast; ordered potass. bromid. gr. v, every four hours, and calomel, gr. $\frac{1}{20}$ every four hours.

September 14th, has had several spasms each day, both right and left sides are now involved, and both legs are stiff during intervals between spasms, and the arms flexed with the hands clenched and the thumbs drawn in. Double internal strabismus and eyes staring; stiffness of neck muscles; child sinking; does not swallow anything. Died September 15, 1885.

The convulsive movements usually are most violent in the side which is subsequently paralyzed. There may be facial paralysis in these cases, and the paralysis is either on the same side as the hemiplegia, or it is on the opposite side according to the location of the cerebral lesion. In the latter case it is spoken of as a crossed hemiplegia.

The onset of the trouble may be from the first few days after birth to four or five years old. Often the paralysis is not observed by the parents until the child is several weeks old. In a case which I saw recently the mother said that when the baby was two weeks old it was noticed that it did not use the right arm and leg. As a general rule contractures take place in the paralyzed limbs, and sometimes movements of a choreic character come on later. When a child attempts to take an object in the hand, for instance, it appears to have no power to coördinate the movements. The hand will open and

shut several times, move over the object without being able to take it, and perhaps just as it is grasped it will be dropped. The children as they grow older have an idiotic expression and speak indistinctly, but their friends will usually say that they are very intelligent. The convulsions are liable to return after the child becomes older, from seven to fifteen years of age, and then assume an epileptic form. The walk in these cases is peculiar and is what is called the spastic gait. The patient walks along in a jerking manner, looking as if he were about to pitch forward. The leg is moved very stiffly and the foot drags along the pavement.

A marked feature in these children is the retarded growth in the paralyzed limbs. Not only are they smaller as to muscle but the bone is smaller or shorter. In the choreic variety, where the arm is in constant motion, the muscles may become hypertrophied but the bone remains small and short. Some of the choreic forms are very curious. I saw a lad of twelve years, some time since, who had had an attack of hemiplegia following diphtheria. The paralysis which was temporary was followed by choreic movements of the arm. When I saw the case the arm was held upright above the head all the time, and the fingers were alternately opening and shutting, and performing various movements as in athetosis. When the little fellow wished to keep the arm down, he pulled it down with the other and sat upon it. The muscles of the arm and shoulder were much hypertrophied.

Prognosis.—As a rule the prospect of recovery in these cases is bad. Occasionally one sees a case get well, but the hemiplegic side is always awkward.

Treatment.—Cod liver oil should be administered. Massage always relaxes the contractions for the time, but generally they soon return. It is very important to insist on a child using the affected limbs as much as possible. Sometimes the only plan is to tie up the healthy limb so as to compel the use of the other.

The lesion in cases of infantile hemiplegia may be a

cerebral hemorrhage or embolism. A syphilitic tumor may also give rise to the symptoms. Occasionally a child is seen with a prematurely ossified skull, associated with hemiplegia and cerebral deficiency.

I have thus gone over the salient points in some of the most common varieties of spinal and cerebral paralysis in young children.

Paralytic affections in children are much more common than is generally supposed, and the result of it often remains through life if the patient survives the original attack. The main points of difference are that in cerebral paralysis the intellect almost always suffers, that the paralysis is on one lateral half of the body, the face, too, being sometimes affected. In the cerebral form there are commonly contractions of the flexors, especially in the arm, while in the spinal variety the contraction, if any, are in the knee and foot and are never seen in the arm. In the cerebral paralysis convulsions are common, while in paralysis from disease in the spinal cord convulsions are exceedingly rare. The bladder and rectum suffer but little when the lesion is in the cerebrum.

TWO CASES OF EMPYEMA FOLLOWING SCARLET FEVER.

BY I. N. MARSHALL, M.D.

Late Senior Assistant Physician Belvidere Fever Hospital, Glasgow, N. B.

CASE I.—Joseph M., aged nine, a rather delicate, pallid looking boy was admitted to Belvidere Hospital on September 5, 1883.

He had taken ill eighteen days before that, with the usual symptoms of scarlet fever of apparently a not very severe type.

On admission the face was rather puffy looking, but there was no distinct edema. A few days afterward the

urine contained abundant blood and albumen, and there was general anasarca.

The usual treatment employed in such cases was adopted here, viz., mild saline purgatives and diuretics with milk diet, but in about ten days, when the dropsical swelling had all but disappeared, the urine, however, still containing albumen, some evidence of pleuritic effusion appeared at the base of the right lung. There was dulness on percussion, but with this there was no respiratory distress and no pyemia.

During the next three weeks, the effusion gradually increased in quantity, and there began to be some elevation of the temperature in the evenings. There was great pallor and considerable emaciation, and the urine still contained a small quantity of albumen.

The only local treatment adopted was painting the chest with iodine, but this did not result in any marked good effect. Cod liver oil and syrup. phosphate co. were given internally.

On October 25th, the dyspnea became very extreme, and the whole right side, both back and front, was found to be absolutely dull on percussion. There was also marked bulging of the intercostal spaces. For a fortnight before this the morning temperature averaged 99°, and the evening 102°.

Paracentesis thoracis was performed in the axillary line and fifth intercostal space, twenty-eight ounces of fluid, healthy looking pus were withdrawn and the wound closed with a carbolic dressing.

This was followed by great relief to the patient. The temperature fell to normal; the dull percussion over the back became much less marked, and in this situation an appreciable respiratory murmur appeared.

On October 30th, the urine again became scanty and albuminous, and patient had two or three well marked convulsions, evidently of a uremic nature. The temperature at this time was normal or subnormal. Under the use of diuretics and purgatives he recovered from this condition.

On November 21st, the signs of pleural effusion having reappeared to some degree, patient spat up a considerable quantity of pus, which, there is good reason to believe, came from the pleural cavity. The signs of pneumothorax were not distinct, however.

By this time the case had assumed a decidedly phthisical aspect. There was extreme emaciation with clubbing of the finger-nails, and the evening pyrexia had returned. For the next few days the expectoration of pus continued.

On December 3d, a fluctuating swelling appeared at the seat of the puncture in the chest, and by this time, also, the dyspnea had returned, and there was absolute dulness over the whole right side.

An opening was made into the swelling, six ounces of pus evacuated, and the wound closed. This was followed by some relief, but two days later, as it was evident that the pleural cavity had not been emptied, the patient was put under chloroform and a free opening made in the side. On inserting a drainage tube forty ounces of pus came away freely. It was quite free from smell.

The operation was done with antiseptic precautions, and a carbolic acid dressing was applied.

After this the breathing became perfectly natural, and there was a marked diminution, though not a disappearance, of the evening pyrexia. The general health, too, now improved rapidly, and the patient gained both in weight and strength. A small quantity of inodorous pus continued to be discharged from the wound. After a few weeks he was able to get up and run about the ward. The right side of the chest became decidedly collapsed, and this gave the patient a peculiarly one-sided gait in walking. Notwithstanding this, he was able to run about and indulge in most of the sports enjoyed by his comrades, in fact he acquired a reputation as a fighter of some dexterity.

On measuring the circumference of the chest, the right side was found to be eleven and one-quarter inches, and the left thirteen inches.

As the purulent discharge had become very much less, the drainage tube was taken out, but as this was imme-

diately followed by a return of the pyrexia, it had to be reinserted in a day or two.

In April, 1884, the discharge increased without any apparent cause. The boy was again put under chloroform and the pleural cavity explored, with the object of making a counter opening. The cavity from which the pus came, however, seemed to be very much restricted, and only came in contact with the chest wall at the place where the opening already was. Syringing out the cavity with a weak solution of carbolic acid was tried, but was not followed by any diminution of the discharge.

The comparative dulness over the right side was distinct, but not absolute, and there was a pretty fair breath sound over the whole affected side. When a long breath was taken, there was distinct metallic tinkling, which seemed to come from the pleural sac.

At this time the urine was quite free from albumen. As the boy had been in the hospital for more than a year, and as his mother was anxious to have him home, he was dismissed, having still the drainage tube in the side. In October, 1885, he showed himself at the hospital, and was then in pretty fair health. There was still a slight discharge from the wound and the collapsed condition of the side continued, though not in such a marked degree.

CASE II.—Patrick C., aged four years, admitted on May 8, 1884, having had symptoms of scarlet fever with a rash nine days previously. When admitted there was nothing noteworthy about the case.

On May 19th, the urine became scanty and albuminous, and the temperature rose to 105.4°. There was some convulsive twitching of the muscles of the face. Hot-packs and poultices to the loins were administered and the bowels were kept loose. Under this treatment the urine gradually became more abundant and less albuminous, and the anasarca all but disappeared.

The temperature still kept high, however, and, on January 1st, some dulness on percussion was detected at the base of the left lung.

On June 5th, the signs of pleuritic effusion was unmis-

takable. The whole left side, back and front, was quite dull to percussion and the respiratory murmur was extremely faint. The apex beat of the heart was displaced and could be felt in the epigastrium. There was no great dyspnea, so far, though the breathing was somewhat accelerated.

The evening temperature always keeping above normal, and there being no signs of the effusion going away; on June 20th, it was determined to explore the chest by aid of an aspirator.

This was accordingly done in the axillary line. A few drops of pus escaped from the needle. The needle was then withdrawn and a free opening made into the pleura.

Between two and three pints of creamy yellow pus, with a slightly offensive odor escaped. A long drainage tube was then inserted, its mouth being transfixed by a silver wire to prevent its slipping within the wound.

In the evening the temperature had fallen to 100.2°, and the patient was much easier. The urine was still albuminous. The wound was dressed daily for some time with antiseptic precautions, and the discharge gradually lessened and then ceased altogether.

The urine continued albuminous for some time and was for several days distinctly colored by the carbolic acid.

On September 7th, the wound was noted as healed.

About this time the temperature began to rise, and the patient, who had been very bright hitherto, became dull and fractious.

Some retention of pus was suspected and the wound was freely probed, but without anything being discovered.

As there had been some cases of enteric fever in the ward a short time before, it was thought possible that he might be taking that disease. This turned out to be correct, for in a few days the characteristic spots showed themselves, and he had a well marked, though not very severe, attack of enteric fever. From this he made a good recovery and was dismissed from the hospital well.

There was no perceptible contraction on the left side, and the breath sound was good all over the lung.

Current Literature.

Proceedings of the Section of Pediatrics of the International Medical Congress, held in Copenhagen, Aug., 1884. Translated by And. F. Currier, M.D., New York.

[CONTINUED FROM PAGE 758, DECEMBER NUMBER.]

The author agrees with this explanation only in part, for in German countries scorbutus is almost unknown, sporadic cases are rarely seen, and in several of the instances in which the disease under consideration was studied the ordinary cause of scorbutus, namely, bad nutrition, was not present. Further investigations upon this question are necessary in countries in which scorbutus is not endemic. This would probably result either in establishing the view of the English investigators, or else in constituting this as a new disease dependent upon the hemorrhagic diathesis to a greater or less extent. It would also be desirable to know why this affection is limited to children in the first two years of life. As to its relations with true rachitis the author believes that it has none, and this opinion is partly based upon one case in which the clinical evidences entirely negated such a condition. Neither could hereditary syphilis, or the hemorrhagic diathesis, be traced in any of the cases which came under his observation. The reply to the question propounded in the caption of his article would therefore be that acute rachitis is a disease of the first years of life, which is characterized by certain phenomena which involve intense disturbances of the nutrition, and on account of the subperiosteal hemorrhages which accompany it. It is probably attributable to scorbutus. It may be, however, that it is a peculiar affection which has not yet been entirely investigated. The name *acute rachitis* should be dropped, as it is believed that the pathological process has nothing in common with that of rhachitis.

Fürst (Leipzig), in discussing the foregoing paper, expressed the opinion that it was premature to say that this was a disease of the hemorrhagic diathesis, or of scorbutic

character, which had no intimate relation with rachitis. Investigations upon dead subjects had as yet been too infrequent to enable us to reach a satisfactory conclusion upon that point. He thought that it would be possible at some time to establish the condition in question as a disease *sui generis*. At present it seemed to him that the clinical symptoms of the disease led one to believe that it was an acute initial, or an exacerbation stage of true rachitis.

Hirschsprung (Copenhagen) desired to present some preparations illustrating "acute rachitis," which had been made by Dr. Barlow, who had been prevented from coming to the Congress to present them in person. He also desired to say that the cases of this disease which he had seen, and about which he had read, showed identical peculiarities (with each other), but he did not think that the name "acute rachitis" was justifiable. He believed there was a relationship of some sort between this disease and rachitis, but he was not able to define it. Neither could he admit that this was a form of scorbutus, for in a practice which extends over many years he had never seen scorbutus in a child, and in many works on pediatrics the disease was not mentioned. Indeed the anti-scorbutic method of treatment had been tried in many published cases of this disease, and had been found inefficient. The source of the subperiosteal hemorrhages in Barlow's cases was to be sought in the thickened and congested periosteum which stood in loose relation with the underlying bony tissue. It was doubtful whether this hemorrhage occurred in all cases of "acute rachitis." Barlow's case must be considered an extreme form of the disease.

Rehn (Frankfort) was willing to agree as to the identity of the observations which have been made by both English and German observers, except in so far as it related to the scorbutic nature of the disease. With that view he could not agree.

Rauchfuss (St. Petersburg) had found a very limited number of cases in Russia during the past ten years, especially in St. Petersburg. In the general hospitals in that city it is seldom seen, in the children's hospitals almost never. Rauchfuss did not remember to have ever seen a case in a child one or two years of age, though his opportunities in hospital and foundling asylum, during a service of ten years as physician and prosector, had been ample. It appeared to him at least doubtful whether the

hemorrhagic processes which had been observed in the cases described by Rehn and by Barlow should be considered scorbutic.

Many of the recorded cases of the disease under consideration appeared to him to be rachitis complicated with the hemorrhagic diathesis. Others evidently had but slight relationship with rachitis, and there were still others in which that relationship did not seem necessary or probable.

Schepelein (Refsnals, Denmark): "*The Treatment of the Chronic Diseases of Childhood in Sea-Coast Hospitals.*"

The efforts which have been made in recent times to treat and cure, in special hospitals, the chronic diseases of children have certainly been incited by good motives. Above all, in those countries in which the sanitary condition of children has been greatly neglected, especially with reference to hygienic measures, much can be done, and more in proportion than for adults, who have reached the limit of their development, and may be suffering from the same diseases. More and more evident becomes the suitableness of the idea of establishing hospitals upon the sea shore. Some of these are open only during the summer, others, like the one at Refsnals, with which the writer is connected, are open all the year. An experience of nine years in this institution has convinced him of its superiority over those which are open for only a short period. The greater ease with which a hospital which is constantly open can be carried on, together with the enormous advantages to the children who are under treatment, will at once be evident. Especially is this true from the fact that the winter is exactly the time when chronic diseases in children most require the care and hygienic advantages which are lacking at their homes. The great method of treatment at these hospitals is, of course, the hydrotherapeutic one, by sea baths during the three or four months in which the temperature of the sea and air will admit it, the rest of the time by baths within the hospital of such a temperature and character as are indicated from the nature of the disease and the temperament of the patient. The object, in a great measure, is to encourage activity of the nutritive processes, and it is thought that this may be best accomplished by cold baths of short duration, in the form of douches, or immersion in a tub. If the patient's power of reaction is feeble, the cold bath may be preceded by a warm bath, involving the whole or only a portion of the

body. The tonic effect which is produced by sea baths seems to be produced likewise by sea air, the wind, the saline characteristics of the air, the ozone, and the strong light, all having an inciting action upon the organism, and this action seems to be more intense by the side of the ocean itself than by any of its inlets or tributaries. For a hospital which is to be used in winter, however, a protected situation is required, and such a situation will also furnish certain advantages in summer. As to the class of patients to be received into such a hospital, they should be those who are affected with debility or weakness of any character, which will be benefited by a sojourn near the sea, especially when anemia or dyspepsia are the cause of it. This applies particularly to children who are able to go about either unaided or with the assistance of suitable apparatus. For those who must keep their beds continually, such a hospital is not especially desirable for winter treatment. In the hospital at Refsnals most of the patients have suffered from scrofula,—that is, since its foundation, in 1875, 716 scrofulous and 108 non-scrofulous subjects have been discharged. Diseases of such a character are particularly amenable to treatment in a sea-side hospital, and the endeavor is made to keep the patients there long enough to secure them against a recurrence of the disease after they go away. The patients are weighed regularly every fifteen days, between five and six in the afternoon, and the changes in weight form an index, to a certain extent, for the treatment. They are allowed to remain in the hospital as long as any reasonable hope remains of cure or of amelioration. The criticism which has been made that certain scrofulous affections are made worse by a sojourn at the sea shore is not warranted by any experience which the author has had. In the treatment of scrofulous affections at this hospital, local lesions are attended to if they exist, and the existence of the following conditions is especially regarded: 1. Stasis of the blood in the venous system, or chronic cyanosis. 2. Certain anomalies of the skin, such as dryness or scaliness over the greater part of the body, with this may be associated a certain degree of swelling of the skin around the sebaceous glands. 3. Anemia. 4. Chronic dyspepsia, a condition which has been observed in a very large number of scrofulous patients. 5. Retarded nutrition, a condition which is a frequent accompaniment of scrofula. These symptoms having been observed a foundation for treatment has

been established which will be dietetic and medical, but above all hygienic and hydroatic. The treatment must be modified from time to time if fever declares itself, a condition which is very apt to be overlooked in the treatment of scrofulous patients. Of nervous diseases hysteria and neurasthenia may be treated with advantage in such a hospital, as statistics will show. Chronic bronchitis and bronchial catarrh among the respiratory diseases are also suitable for such a place. Likewise chronic pulmonary infiltration is no contra-indication for a sojourn there, as is amply proven by the author's published statistics. This, however, is in opposition to the views which some writers take in regard to sending patients in such a condition to the sea shore. Other diseases which have been treated in this hospital by the author, with good success, are rachitis, chronic dyspepsia, chlorosis, and anemia. Patients with chronic surgical diseases are operated upon only when an operation cannot be avoided, the preference being given to methods of treatment by which healing frequently occurs without any operation. The author has appended five tables to his paper, in which the details of the work of his hospital are delineated.

VALCOURT (Cannes): "*Winter Baths for Scrofulous Children, at Cannes.*"

This hospital was founded in 1881 by Jean Dollfus. It is designed for children affected with coxalgia, Pott's disease, scoliosis, cold abscess, osteitis, etc., and receives by preference those who come from Paris, Geneva, and Mulhouse, of which latter place the founder was once magistrate. Its object is to build up the constitution of those who suffer from the diseases mentioned, by a sojourn during the winter upon the shore of the Mediterranean, where the effects of the sun, the light, and the sea baths can be thoroughly tested. The results which have been obtained have been so remarkable that notwithstanding the recent date of the foundation of this maritime hospital, the author feels warranted in calling the attention of the medical profession to the advantages of a temporary residence upon the shore of the Mediterranean, for scrofulous children, especially for the application of sea baths during the winter. The children are kept at the hospital from the first of October until the first of June. The hospital is then closed until the first of September, on account of the intensity of the summer heat at this station, the elevated temperature of the sea water, and the tendency to diarrhea under these conditions. The sea baths are administered

from the time when the hospital is opened until the end of November or the beginning of December. In March they are resumed again. Even in January and February the temperature of the water does not go below 12° C., and would be warm enough for baths if there were not fear of a failure to react on account of the too low temperature of the air. In the autumn and spring the temperature of the sea water is from 16° C. to 22° C., and the atmospheric temperature is about the same in the middle of the day. With regard to the solar rays, they indicate a temperature of 40° C. to 50° C., and this powerful heat of the sun aids reaction after the bath to a great degree. In general the principal question to be studied is—How is reaction to be produced? If a child is warm after finishing his bath, he is apt to react equally favorably after subsequent trials. If, however, reaction is not prompt, it is better to suspend this method of treatment for the time and begin again, very gradually, when he seems stronger. In most cases reaction is satisfactory and prompt, though the children may cry when they are first put in the water, they soon learn to love it and enjoy playing in it. The duration of the bath should be from two to ten minutes, according to the case, and the season of the year. In some cases it is best to bathe only every other day, especially if much excitement attends the operation. Abundant discharge from the glandular sores is not necessarily a contra-indication to bathing, indeed the sea water sometimes causes suppuration to be more profuse at the beginning of treatment, but its tonic influence quickly modifies the constitutional condition. By ameliorating the general condition and bringing about a cessation of suppuration, it does not follow that one can necessarily do away with all surgical treatment. Sayre's method is followed in the surgical treatment of scoliosis and coxalgia, the appliances being prepared either with silica or with plaster. They are so adjusted that they can be removed at the time of the bath, to be replaced immediately after the bath is ended. In some cases a dressing is required upon the wounded glands to protect them against the too positive action of the saline water, but such cases are only exceptional, the effect of the sea water being usually salutary. No baths should be given during the period of contracture in coxalgia and in general during the formation of purulent collections, or during periods of fever. The treatment in nearly all cases has been twenty-five or thirty baths in the autumn, and forty to

fifty in the spring, the results being satisfactory in all cases. To this treatment was added frequent walks along the sea shore, and in the pine woods of St. Marguerite and St. Honorel in the vicinity of Cannes.

Schoenfeldt (Brussels) announced that a hospital similar to those which the Danish and French had established was about to be established at Middelkerke near Ostend, from which good results were anticipated.

Rehn (Frankfort) observed that the first German establishment of this character had been established by Beneke on the North Sea in Nordeney.

Rauchfuss (St. Petersburg) told of an institution for scrofulous and otherwise diseased children, as well as for convalescents, which had been established in 1872, at Oranienbaum on the Gulf of Finland, forty-two kilometers from St. Petersburg. The hospital contains fifty beds and has had a series of excellent results, but it is only open during the four months of summer.

RAUCHFUSS (St. Petersburg): "*Can Croup be Considered Clinically as a Well Limited Morbid Entity?*"

The author observed that the manifold significance of the word croup arose from the fact that the term was not of scientific origin, but was used by the laity without exactness of significance. Bretonneau used it in the form of pseudo-membranous croup, to signify laryngeal and tracheal diphtheria; while in Germany it was applied to anatomical changes in what were called croupous affections of mucous membranes. In recent times croup and diphtheria in their relations and antagonisms have been almost endlessly discussed, so that little remains of the original simple clinical conception of croup. Though Bretonneau believed that croup and tracheal diphtheritis were two terms for one idea, he was far from thinking that this idea was unconditional, for he admits the possibility of a croup which is independent of diphtheria, and warns his followers against diagnosing all pseudo-membranous inflammations of mucous membranes as diphtheria. Virchow declared that it is necessary to consider croup from a clinical stand-point as a special affection of the larynx and trachea with a definite combination of symptoms, but that the subdivisions of croup should be considered in accordance with anatomical changes, and should be differentiated as catarrhal, fibrinous, and diphtheritic forms. It seemed questionable to the author, however, whether the word which indicates a simple clinical conception should still be employed, if the ana-

tomo-clinical diagnosis cannot be embraced by one of the three chief forms of acute laryngo-tracheitis, and if in the general idea of the disease such heterogeneous forms are included, as, for example, catarrhal and diphtheritic laryngitis. In favor of the idea of the unity of the clinical conception of croup in its various forms, it must be admitted that the chief forms of laryngo-tracheitis may take their course even without the symptoms of croup, and that prognosis and treatment may be influenced by the presence or absence of these symptoms of croup. Therefore, in spite of the great certainty with which we are usually able to differentiate the various forms of croup, clinically, it yet remains that there is need of a simple arrangement of these forms for clinical purposes. Some stress is laid by the author upon the necessity of laryngoscopic examinations in connection with the diagnosis and treatment of croup, this means being often efficient in enabling one to differentiate between the different clinical forms of the disease. In this connection subchordal laryngitis is described which is without the fibrinous deposits of true croup, but has its other clinical phenomena and is met in all the forms of croup. The author believes that it is acute subchordal laryngitis which so often gives to catarrhal laryngitis in children the appearance of the series of phenomena which is seen in croup. The fact which has been known since Bretonneau pointed it out, that the stenosis of the larynx and trachea in croup is due to the swelling of mucous and submucous tissues is of importance in the study of the disease from a clinical stand-point. This explanation holds alike in true and in false croup, a spasmodic origin being considered improbable. In regard to treatment, the plan of the author for many years, was that in which mercury formed the principal medicative agent. Within recent years, however, this method has been reserved for severe and for very young patients, while in other cases hydrotherapeutics, including various means for establishing free secretion from the mucous membranes has been relied upon. This method becomes the more rational when one recognizes the condition of stenosis as common to all cases of croup, and as caused by swelling of the mucous membrane of inflammatory origin. This mucous membrane and its adjacent tissue, is to be relieved by action upon its blood circulation, upon its secretions, and by the application of moisture. That these results are obtained by mercury was observed by Bretonneau, who, therefore,

gave it the preference among remedial agents. The same results may be obtained by antimony and apomorphin. As has been already stated, the author's present method of treatment is largely hydrotherapeutic. Every half hour or hour he would give from one to two hundred grams of either plain hot water or tea with a little sugar, and perhaps a little cognac, etc.; three or four quarts of drink being thus taken daily, in addition to the milk, bouillon, etc., which may be required for food. Moist packs are also used, particular care being taken to keep the feet warm. If the temperature be high, moderately cold douches may be applied, for ten minutes at a time, which will tend to regulate the respiration, and overcome fatal somnolence. Internally small doses of apomorphin may be given but not enough to excite vomiting. To these may be added means for the purification of the affected mucous membranes, as the inhalation of alkaline sprays or vapors, carbolic acid in weak solution, etc. Should the fibrinous inflammation extend to the bronchial region, the question of tracheotomy must at once be considered. After such an operation it is, of course, more than ever necessary to keep the air of the sick-room loaded with moisture. In conclusion, the author considers that croup may be divided into five classes or categories for casuistical and statistical purposes:—

1. Light grades of catarrhal croup, pseudo-croup.
2. Inflammatory croup, severe grades of catarrhal croup.
3. Fibrinous croup.
4. Diphtheritic croup.
5. Secondary croup, which may occur in the course of, and in connection with other forms of disease.

Each of these forms may be of a diphtheritic character, that is in a causal sense; the two forms of catarrhal croup are only exceptionally of such a character, while fibrinous and secondary croup are frequently so. To the varieties of diphtheritic croup, in a narrower sense, must be added cases which are complicated with diphtheritic local phenomena, apart from the larynx and trachea, or with decided symptoms of diphtheritic infection. An important division of the categories of fibrinous, diphtheritic, and secondary croup would be formed by those cases which are complicated with tracheo-bronchitis. The causal factor for catarrhal as well as for fibrinous croup, should always be clearly determined, or else it should be signified that it cannot be made out.

Virchow (Berlin) observed that he agreed, in the main,

with the conception of croup as it had been enunciated by the author of the foregoing paper. He thought it always necessary to carefully distinguish anatomical considerations from clinical ones, otherwise misconceptions will arise by the changing of terms from their proper field and function. This was seen in the confusion which followed the development of the ideas which were involved in the terms apoplexy and dysentery, for example, the results of anatomical investigation requiring a terminology more definite than was embraced in the original terms which contained the clinical concept. So with croup, which had a purely clinical significance until the time when the Napoleonic prize called forth a great number of contributions upon this subject. Then came the anatomical idea of the pseudo-membrane, which, later, was found to have different significance and relations at different times. Then there may be pseudo-membranous deposits in the larynx and purulent ones in the trachea, occurring at the same time, in other words in addition to the well-known fibrinous process or inflammation, a purely catarrhal pseudo-membranous one. In addition to these two is the diphtheritic process, which penetrates the tissues deeply, and shows a tendency to necrosis of the same. These three forms constitute the clinical varieties of croup, for which there are different anatomical conditions. The employment of the idea of croupous inflammation, the so-called croup of the alveoli was thought to be one of the most unfortunate applications of the same. With no form of pneumonia has croup of the larynx less in common than with croupous pneumonia, in which the beginning is hemorrhagic, and which only at a later period assumes the appearance of a purely fibrinous exudation. Pneumonia patients have no tendency to croup, and the pneumonia which occurs to children with the croup is usually not fibrinous in character.

Baginsky (Berlin) confessed that he was in harmony with the author of the paper in regard to the main points of the subject. He desired to call especial attention to the fact that it is possible to make laryngoscopic examinations in young children. He feared, however, that the paper would give rise to misunderstandings in one particular, namely, in the statements which were made in regard to secondary croup, since in this form varieties of disease which differ anatomically are brought into relation with each other. He would like to ask Prof. Virchow to express his opinion as to the extent to which the assumption of an ascending croup seems admissible.

Virchow (Berlin) replied, "That one must deal very cautiously with the subject of ascending inflammations in such cases, since the proof that the larynx is free from deposits from the beginning is difficult to adduce. In the pharynx, also, there may be thin, entirely superficial fibrinous deposits."

A. Jacobi (New York) remarked, "That if Prof. *Virchow* were not entirely convinced of the existence of ascending croup, the reason doubtless was to be found in the fact that he was in the habit of seeing only the completed process in the dead subject. In the speaker's experience a boy with a stricture of esophagus lay for weeks, with a cough of moderate severity, with very little fever; he was able to play, and was usually out of bed. He had very little dyspnea, but after some weeks he suddenly became cyanotic and died in a few hours. A diphtheritic deposit was found upon the cicatricial tissue in the esophagus, which had been dilated daily with bougies. There were also very extensive fibrinous bronchitis and pseudomembranes in the larynx. Without doubt the former had existed for some time, but the latter was evidently of recent origin. Occasionally also one meets with a case of stenosis of the larynx, in which there is intense cyanosis which demands immediate tracheotomy. The clinical history may record a cough which has lasted for some time, little or no fever, and occasionally fibrinous expectoration. Sometime a diagnosis may have been made of fibrinous bronchitis; at other times it may not have been made. The sudden change for the worse depends upon the formation of membranes in the larynx. Out of 450 tracheotomies we had seen sixteen or eighteen cases in which the condition in question existed. The operation furnishes no benefit at all or only very little. The patients usually die within twenty-four hours."

Virchow (Berlin) in reply said, "That there were, doubtless, cases of diphtheritic croup, in which the entire respiratory mucous membrane, from the larynx to the bronchi, was diffusely infiltrated with diphtheritic matter. Of this character might be considered the variolous form of laryngo-tracheitis. The so-called pustules which are found on the respiratory mucous membrane are diphtheritic deposits which are developed in the region of the cylindrical epithelium. On the other hand, one may find, in the domain of the pavement epithelium, as in the pharynx quite superficial deposits of fibrinous material. Usually the parts which are occupied by pave-

ment epithelium show a tendency to diphtheritic infiltration, while those which are occupied by cylindrical epithelium show a greater tendency to fibrinous deposits, but this rule is not without exceptions."

Rauchfuss, in closing the discussion, observed, in regard to *Baginsky's* objection to the class of secondary croup in an anatomical classification of the various forms of croup, that the arrangement which was made by him referred entirely to clinical features of the disease. Anatomical subdivisions could not be dispensed with, as was explained by the stress which was laid upon the importance of laryngoscopic examinations in making a diagnosis in these forms of croup. Secondary croup was considered an etiological-clinical subdivision for which an accurate anatomical-clinical diagnosis could be dispensed with no more reasonably or readily than in primary forms of croup. Those cases are to be considered as cases of secondary croup in which the croup occurs in an individual who is already sick. It occurs most frequently in the course of acute infectious diseases like measles, typhoid fever, etc. If diphtheria did not, to such a marked degree, dominate, the severe forms of croup, it might be shown that diphtheritic croup should be considered as secondary. This, however, does not seem to be practicable, and for various reasons the term diphtheritic croup has been employed by preference. As far as the ascending form of the disease is concerned, in which fibrinous tracheo-bronchitis precedes laryngo-tracheitis, such cases had been seen by the author and had been considered as of diphtheritic and infectious origin. Such cases are, however, rarely seen.

FURST (Leipzig): "*The Propagation of the Use of the Thermometer. Demonstration of a New Thermometer.*"

For exact observations among sick children and for correctly carrying out hydro-therapeutic measures in febrile diseases, it is of great assistance to the physician in family practice, and conducive to the return of health, if the mother of the patient, or the nurse, is acquainted, to a moderate degree, with thermometry. This is especially true in cases in which a trained nurse is not employed, and in which the physician is unable to see the patient several times daily, to take his temperature, especially after the use of cold external applications. Unfortunately the knowledge and use of the clinical thermometer by the laity are exceedingly limited, and the ordinary atmosphere and bath thermometer are apt to be

inaccurate. The aim of the author has been to construct such a thermometer as would be sufficiently accurate in its registrations, and sufficiently simple to be used by any person of ordinary intelligence, in the varying conditions of fever. It is graded in tenths according to the Celsius method for clinical purposes, while it is also graded by Reaumur's method for room and bath registration. Thus the air, the water, and the body temperature may all be measured by this instrument to which the author has given the name *universal thermometer*. Externally it is not very different from a clinical thermometer, but in contrast to such, as they are commonly seen, it has a mercury column of a different size, the lumen narrowing from 35°C. upwards and continuing in this narrow calibre to 46°C., being graded as before observed, in tenths. Under and above the given limits the tube is thicker, for in such areas the question of measuring the body temperature does not come into consideration, and consequently a gradation into complete Reaumur degrees is sufficient. The Celsius scale is placed upon the left side of the index, and the Reaumur on the right. The frame of the instrument is made in the simplest manner for convenience of use as a bath thermometer, being held in the water by its handle. The handle will also serve as a means for hanging it up, when it may be used for taking the temperature of the air.

HIRSCHSPRUNG (Copenhagen): "*The Frequency of Intestinal Invagination in Denmark.*"

Invagination is a rare condition in the early periods of life although it is seen more frequently than any other form of intestinal obstruction. Systematic writers upon the diseases of children report very little personal experience with the condition. Rilliet, in 1852, reported four cases of his own and four others which he had collected. Pilz, of Stettin, reported one case in 1870. Leichtenstern and Widerhofer have each had one case, and the latter was able to find fifty-eight recorded cases. Barrier and Billard had neither of them ever seen a case of the condition. Meigs and Pepper found it exceedingly rare in their practice. Charles West has seen it only three or four times.

The author has had a somewhat extensive experience, having seen in Copenhagen, in the course of sixteen years, twenty-seven cases, and several other cases were also seen by other Copenhagen physicians. Möller reports nineteen cases which he and several colleagues had seen in

Jutland. Nielsen collected twelve cases which had been seen by him and his colleagues in Seeland during the same period as that in which the author's cases were observed. Thus the condition is relatively frequent in Denmark when compared with other countries. The diagnosis has been confirmed in many of the cases by autopsies, and in all the symptoms were so clear that it did not admit of question. The Danish medical literature from 1801 onward, contains quite a large number of recorded cases of the same condition, so that the conclusion is warrantable that it is more common in Denmark than in many other countries. The cause of this frequency is difficult to explain. The condition is not one which varies with conditions of climate; the subjects of it live under practically the same social conditions, in fact the condition, though one of great interest, is one in which no clue to its causation has yet been discovered. The subject was thought to be a suggestive one and appropriate for such a gathering of medical men.

RIBBING (Lund): "*Contributions to the Same (foregoing) Subject.*"

In 1882 the author made a search of the Scandinavian medical literature, the reports of Swedish clinics and pathological institutions, and also the reports of Swedish hospitals for the preceding twenty years, for facts in connection with the preparation of a treatise on intestinal occlusion. In addition he received reports upon the same subject from a large number of Swedish *confrères*, each of whom had an extensive practice. In this manner he was able to collect forty cases of intestinal invagination, of which nineteen were in children in the first year of life, ten in the second, and the other at a more advanced period. At Stockholm, at the Hospital for the Relief of Children, during a period of thirty-two years, 1046 autopsies were made upon children who had passed the first year of life, among these only two cases of intestinal invagination were found, while among 4,649 autopsies upon young nursing infants eighteen cases of simple and multiple invagination were found, but all of the latter variety were evidently associated with the death struggle. These facts show that although intestinal invagination is very common or relatively common in Denmark, it is extremely rare in Sweden, a country with more than double the population of Denmark. This infrequency could not be due to defective observation since medical investigations are carried on with great care in all the Scan-

dinavian countries, and there is nowhere such an aversion to post-mortem examinations among the people as would prevent the accumulation of statistics from such means. The causes for this great difference are very obscure. The infant mortality in Denmark, as well as in Sweden, and Norway, is very small, compared with some other countries, and it is believed that the care which children receive in these countries is, on the whole, of a proper character. If one should observe the occasional cause in particular cases, it will be found that invagination sometimes occurs at the period of weaning, or among children who have been, wholly or in part, nourished artificially. As a consequence it would be very interesting to know whether this condition is more frequent in those countries and among those classes of people with whom nourishment in the natural way is less common. In Sweden nourishment at the breast is the rule, and it is seldom replaced by other means. As a curious circumstance it was observed that the Swedish observer who had seen the largest number of cases of invagination, among those who sent their reports to the author, was one who lived nearest of all his colleagues to Copenhagen.

Rehn (Frankfort), in opening the discussion, said that in his twenty-five years of practice he had seen but three cases of the disease, which convinced him that it was very rare in his neighborhood.

Von Heusinger (Marburg) had seen very few cases himself, and was certain that it was rarely met with in his vicinity. As to the exciting causes he thought they were probably mechanical, and narrated a case which occurred in the person of a child two years of age, in which the phenomena of the disease appeared suddenly after the reception of mechanical violence.

Raymond (Limoges) confirmed the opinion of Hirschsprung, that this condition is much more rare in France than in Denmark. During a practice of more than thirty years he could recall only three cases which he had seen. One of them had occurred two years previously in the person of a young pupil at the Lyceum of Limoges. The exciting cause was the ingestion of a large quantity of cherries with their stones. The child died, but no autopsy was allowed by the family. The second case occurred in a peasant woman, who came to the hospital at Limoges with a segment of the intestine thirty centimeters long projecting from the anus. Reduction was accomplished,

but the patient died from the peritonitis which followed. The third case happened many years ago, and the patient died while preparations were being made for the performance of laparotomy.

A. Jacobi (New York) referred to the small number of cases mentioned by Meigs and Pepper, and agreed with them that the publication of a larger number of cases was necessary to reach conclusions in regard to the condition. The speaker had seen at least twenty cases, and probably more than that number, since he published his first case in 1856. A very few of his cases came from his private family practice. In regard to etiology the mechanical element is a decidedly important one. The cause lies in the loose attachment of the intestine in the right inguinal region, from which region most of the invaginations during the period of childhood proceed. The speaker had seen invagination caused by the motion of swinging or rocking upon the arm. In another case it was produced by a paroxysm of whooping cough.

FAYE (Christiania): "*The Self-redressing Method of Kjölstad in the Treatment of Deformities of the Spine.*"

The author stated that the object of his paper was to give a short description of a peculiar method of treating deformities of the spine, a method which originated with a Norwegian physician, Dr. Kjölstad, who died in 1860. This method is based upon very simple and natural principles, and in suitable cases, especially those in which there exist the so-called muscular deformities, it has accomplished excellent results. This method is well known in Scandinavia, and is not unknown in the rest of Europe, since at the great Hygienic Exposition at Brussels, in 1876, Dr. Tidemand, the successor of Kjölstad, was awarded a gold medal for a photograph album with text describing and illustrating this method, an award which was made to no other orthopedist at that exposition. The method has also been recently described by Germain, a Paris physician, in a very brief manner, but quite correctly, in connection with the narration of a case which was treated by this method, the patient being a girl fourteen years of age. The author, believed, however, that the excellencies of the method were not so universally known as they should be, which furnished him with a reason for presenting his paper before the Section. Kjölstad began the development of his method in 1838, years before he published anything in regard to it, gradually making changes and improvements as his experience matured.

He was aided in this matter by unwonted energy, great force of will, and decided individuality, all of which he was forced to exert in the face of unfavorable outward circumstances. There was in him the very rare combination of great practical shrewdness united to a profound tendency to speculation upon questions in metaphysics and natural philosophy. His peculiar, obscure, and not always happy method of employing his theoretical propositions, to establish upon a rational basis his practical method, prevented confidence in it to no small degree, and many turned away from the whole matter in the belief that its practical side was no more worthy of acceptance than its obscure philosophical demonstration. Kjölstad called his method a self-redressment.

The main point in his treatment lies in a continuous effort to excite in an energetic manner the individual will power of the patient, so that he himself may make every effort to struggle against the physical and mental sluggishness and indolence, which, according to his idea, was the fundamental and controlling error in such patients. Therefore, he founded an institute where he could have children under his personal supervision as long as the treatment continued, believing that they would exercise and exert themselves more efficiently if they realized that they were constantly under his eye. It is highly gratifying to observe how well developed in all respects children become under this treatment. Not only is the deformity corrected, the whole person becomes changed. They frequently come to the institute bent over, weak in will, with relaxed expressionless countenances, and usually go home erect in stature, stronger in every way, in a word entirely changed. Convincing proof of this is seen by comparing the photographs which are taken when they come with those which are taken when they go. The development of Kjölstad's method was as follows. His first patient was his adopted daughter whom he told to imagine that she represented a great cross standing erect, and then to attempt to direct herself according to its perpendicular and horizontal lines and still stand erect. Then he taught her to make various movements with the arms and legs, but always with the idea of the cross for a pattern. Next he went further and taught her and the others who soon joined his class, to fix in their minds various geometrical figures, lines, curves, etc., and next to go through certain movements with the body which would correspond with the figures. In these

movements which he called thought-pictures, he taught the patients to fix their entire attention upon some definite part of the body, as the end of the thumb, the top of the head, and after they had concentrated their minds upon this part, he required them to move it only in a particular direction. In order to do this accurately, for example, to raise the end of the thumb as high as possible, they would be compelled to contract forcibly a number of muscles in other parts of the body. The effect of these movements was not only to strengthen the muscular system, but also to give force and confidence to the will. In time it began to be evident that these demands upon the imagination of the patient were too great, and could only be carried out by the most competent among them. Kjölstad was, therefore, compelled to limit the number of *thought-pictures* and movements, and finally limited the cardinal points of concentration to the top of the head, the navel, and the space between the closed heels. Upon these points the attention was directed as closely as possible, while the body was compelled to go through certain movements. In order to stimulate the force and energy of the patients as much as possible, he again made requisition upon the imagination, calling upon them to imagine that a heavy piece of lead was attached at the navel, and that they must raise it from the ground. He urged them to imagine that they were by degrees lifting heavier and heavier burdens, always enjoining upon them to stand erect. These measures, which may seem to some to be nonsensical, certainly accomplished in his patients a forcible, active, erect attitude, and correct bearing. Therefore, it was not without some reason that Kjölstad was accustomed to speak of umbilical power and other equally peculiar expressions. From this kind of exercise the patient progressed to a very forcible foot-exercise with definite steps, and still with constant effort to retain an erect bearing. Also other exercises in standing or walking were added as occasion required. In order that all these means might accomplish the desired end, it seemed necessary that they should be carried out to their minutest details, and, therefore, more depended upon the good will and energy of the patient than upon the labor of the physician who played only the rôle of a stimulator and conductor. With good reason, therefore, could Kjölstad call his the method of self-redressment or correction. In order to fully appreciate his service to orthopedy, one must remember that until his time the accustomed method of treating deformities

of the spine were almost exclusively a mechanical one, by which children were kept in bed, perhaps for years, and were tortured with various more or less complicated stretching or pressure apparatus, which was not always devoid of harm as to its results. What a beneficent reaction, therefore, was brought about by this natural strengthening, and non-compulsory method of self-redressment. At about the time when Kjölstad was developing his method the renowned Swede, Pehr Henry Ling, appeared with his epoch-making system of health gymnastics, which is now so generally used, and which could be employed with the greatest advantage in treating deformities of the spine. Neither Ling nor Kjölstad, in these early days, had heard of each other, nor either of the other's system of gymnastics. They worked entirely in independence of each other, and on somewhat different principles. The method of Ling was, perhaps, more exclusively under the control of the gymnastic teacher, while that of Kjölstad was rather in the hands of the patients themselves. It was very easy, and useful, too, to adapt the movements of the Ling-Branting system (Branting being the successor and most distinguished pupil of Ling) upon that of Kjölstad. A very simple but very effective stretching machine was constructed by Kjölstad as one of the means of treatment in his system, and using this in a standing position, the patient was enabled to go through a series of combined active and passive movements which proved in many cases, to be very useful. It is very interesting to note the manner in which the deformed backs became more and more straight under this treatment. The patients use the machine several minutes at a time, or as long as they can without too much fatigue. Further, Kjölstad invented, by means of a light corset to be worn for protection during the time when one was not exercising, a girdle for the hips provided with handles, which could be seized and drawn upon by the patient from time to time, thus continually helping to straighten out the deformed back. The handles were to be seized, and the palmar aspect of the hands was to look forward, the result being that the shoulder blades would gradually be approximated and brought into a normal and favorable position. Kjölstad was very successful with his treatment, and for this reason enjoyed the greatest confidence of his patients, both little and large, notwithstanding a certain severity of demeanor which characterized him. In recognition of his services the State gave him a reward, and in

addition a yearly pension for life. After his death, in 1860, his work passed into the hands of his pupil and assistant, Tidemand, who continued it until his death in 1883. It could not have fallen into more suitable hands, and with an energy that never slackened, with humanity and zeal he fairly sacrificed himself to the interests of his work. He founded at Christiania an institution for the treatment and care of such as required his services. This institution received assistance several times from the State at the recommendation of the medical faculty in that city. It is now conducted as a private institution, and similar ones were established at Drontheim and Bergen, of which only the latter is now in operation. In all important points Tidemand followed Kjölstad's methods closely, but near the end of his life he discarded some of the expressions and thought-pictures which were most difficult of comprehension, retaining the movements and postures which were associated with them. He also borrowed several exercises and simple contrivances from different orthopedists and gymnasts, all of which, however, had a bearing upon Kjölstad's fundamental idea in his method of treatment, namely, that of self-redressment. According to Tidemand's experience, the most favorable time for this method of treatment is during the period between the tenth and sixteenth years, but both younger and older patients than those included between these limits were treated successfully by him. Females seem to be more susceptible to these deformities than males, and consequently the larger portion of his *clientile* was taken from that sex. The result of Tidemand's methods have been published several times, and from these publications the following abstracts have been taken. Between November, 1866, and the end of 1874, he treated 186 female and 21 male patients, among whom there were 195 cases of spinal deformities in 177 persons. The rest of the patients were subjects of various muscular and nervous diseases, and were successfully treated by an appropriate course of gymnastics. Of 28 cases of muscular kyphosis good improvement was obtained in 22. Of 62 moderately bad cases of habitual scoliosis, either complete restitution or more or less decided improvement was obtained in 50. Of 48 bad cases of the same trouble, excellent improvement resulted in twelve cases, and a moderate degree of success in 33. Tidemand often complained that patients waited too long before orthopedic treatment was begun, as attention at an earlier period would have given even

better statistics. Of osseous kyphosis, a condition in which the prognosis must, in general, be a very bad one, good success was achieved in one case, and some improvement in five others, out of ten who were subjected to treatment. The duration of the course of treatment was from three to nine months in the large majority of cases. In extreme cases it sometimes extended to two and three years. Since Tidemand's death the work has been carried on by his daughter and the author of this paper, both of whom were formerly his assistants. As to the daily *curriculum* of the institute, the work begins at a quarter before eight in the morning, and continues, with necessary pauses and rests, until half past eleven, then comes lunch and rest until about two in the afternoon, then a continuation of the exercise, but for a shorter period than in the morning. Most of the children live in the *pension* of the institute, and, as a rule, they retire to bed quite early. They sleep on hard mattresses with low pillows, and though this arrangement may not be pleasant at first, they very soon become accustomed to it. No attempt at constraint of position at night is now made, though in the original method of Kjölstad a moderate amount of stretching was desired.

Falcourt (Cannes), in opening the discussion, remarked, that after hearing the author's paper and seeing the photographs which were exhibited to the Congress, one was convinced that the system of massage and gymnastics which had been described was capable of doing good service and leading to good results. Nevertheless, the system appeared insufficient to the speaker. In his opinion Sayre's jacket should be added to the means described, in order that the weight of the body be not carried upon the dorsal spine but be transferred to the hips. Sayre's apparatus is immovable and yet removable, and may be taken off every day, whether for sea-baths, in accordance with the treatment at Cannes and other similar resorts, or for massage and gymnastics.

Levy (Copenhagen) remarked that the undoubted value of the method of Kjölstad was attested by the paper and the statistics which had been presented. As a means for the treatment of scoliosis it could not fail to be productive of good results, and as such was a source of instruction to all who were present at the reading of the paper. For the discoverer of the system and those who had been associated with him, the methods which were used had evidently proved sufficient for the treatment of scoliosis without any additional mechanical appliances, either in

the form of corset or bandage. To others, however, who were not in a position to carry out that method in its fulness, or to give to it the necessary pains and labor, it seemed to be necessary to furnish something else, and the speaker believed that that want was supplied by Sayre's plaster-of-Paris jacket. By its use one could obtain extension by means of the suspension which accompanies the application of Sayre's jacket, and that, too, for a longer period than is occupied simply in adjusting this appliance. Also while the jacket may be immovable while it is in position, it is possible to remove it daily for the requisite gymnastic performances, and then, at the proper time, to reapply it.

Rauchfuss (St. Petersburg) thought that the method of Kjölstad was as ingenious as it was efficacious. It had been practiced under the speaker's eyes for the past twelve years at the Hospital of Prince Peter, of Oldenbourg, but not in the same degree of perfection, nor with the same results which characterized its use in the hands of its originator and his successors, since the hospital in question is not especially devoted to the treatment of *scolioses*. Sayre's corsets, in the speaker's experience, proved a valuable adjunct to Kjölstad's method. These corsets are made of felt or of leather, and are moulded to the body while the patient is suspended in which position the necessary or possible corrections to the scoliosis can be made, as well as the position of the hips, etc. This combination of the corset and the system of gymnastics seemed to the speaker a very excellent one, especially in severe cases of scoliosis. In milder ones no doubt the gymnastics alone would suffice.

Faye (Christiania), in closing the discussion, believed that the gypsum jacket of Sayre was really valuable only in cases of *spondylarthrocace*, and less decidedly valuable in cases of muscular, so-called habitual, scoliosis, because, in his opinion, only a restrictive, muscle-weakening pressure was accomplished by it. A moderately simple corset, on the other hand, might serve as a very useful means of protection. Kjölstad himself had constructed a corset which, with slight modifications, had been in use ever since his time. Tidemand was in the habit of using such an instrument only after a couple of months of treatment, in order that his patients might first learn to stand erect by their own efforts.

VAHL (Jägerspais): "*Communications Concerning the Weight of Young Girls During the Period of Growing.*"

The material for the investigations of which this paper is a report was furnished by the institution for poor and helpless children, which was founded at Jägerspås, six miles from Copenhagen, in 1874, by the widow of Frederick VII., King of Denmark. The attendance at this institution was, at first, only sixty, but now it numbers 315 young girls between the ages of three and sixteen years. They are taken care of without cost to themselves, and are educated for family service. It has been the custom during the entire period between 1874 and 1883, to weigh these children in the spring and autumn. The total number of weighings of the 346 girls who have been under observation is about 4,000. The weighings were made in the afternoon, all the clothes being worn with the exception of the hat and shoes. One-sixteenth of the recorded weight was deducted as the average for weight of the clothes. Another correction to the tables, which the author publishes in connection with his paper, is necessary because it was not possible to weigh all the children, as intended, upon April 1st and October 1st. As to the gain in weight the tables show that there is a decided difference between that of the winter six months, and that of the summer six months, the average gain in the nine recorded winter periods being five per cent. of her total weight for each child, while in the summer periods it was six and one-third per cent. for each child. The third of the three published tables shows the average yearly gain in weight, and has been arranged for the different ages of the children from four to fourteen. From this it appears that the increase in weight, yearly, follows a certain regularity, being ten per cent. from the fourth to the ninth year, eleven per cent. from the tenth to the thirteenth, twelve per cent. during the thirteenth, and nine and a half in the fourteenth. The entire average gain in the eleven years from the fourth to the fifteenth was eleven per cent. The constancy of these figures from year to year, for the different ages of the children was varied in 1880 by the occurrence of an epidemic of whooping-cough, which was the only one which influenced the health and nutrition of the children during the entire nine years in which the observations were made. In the winter period of 1880 and 1881, therefore, there was, as might have been expected, only a moderate increase in weight, but this was compensated by a very decided increase during the two following periods. As a result of his investigations the author felt warranted in drawing

the following conclusions, which he believed would be equally applicable to other normal and healthy children at the same period of life.

1. Girls between the ages of four and fourteen years gain regularly in body weight every year.

2. Increase of body weight ends usually at the fifteenth year.

3. The increase of weight in summer is usually one-third greater than it is in winter.

4. The annual increase of weight for each year of life in girls may be said to follow a certain rule.

5. The yearly percentage of increased weight is almost constant, that is ten per cent. from the fourth to the ninth year, eleven to thirteen per cent. from the tenth to the thirteenth year, nine and a half per cent. for the fourteenth year, or an average of eleven per cent. for the entire period, each year.

D'ESPINE (Geneva): "*Easily Curable Spinal Paralysis.*"

The diversity of symptoms of a disease does not exclude a certain unity, which enables us to recognize a distinct pathological type, just as in botany a great number of plants belonging to a single species present each several distinct varieties. At the present time, what are the distinct species to which one can refer the spinal paralyses occurring in children, apart from cases of traumatism, tumors, or compression of the cord? There are three principal ones, viz., acute anterior poliomyelitis, which includes the greater number of cases which are commonly called infantile paralysis; chronic anterior poliomyelitis, which is of exceptional occurrence in childhood; and spastic paralysis of Erb, or spasmodic tabes. The case which was presented by the author to the Congress, and which was considered by him as an imperfect form of acute anterior poliomyelitis, differed in some important points from the classical description of atrophic spinal paralysis of childhood. No recorded case was found which was exactly identical with it, but the author hoped that some member of the Section had seen a similar case, and if so, that he would communicate it. The term dates from the publication of Kennedy's memoir upon the subject which appeared (translated) in the *Archives Generales de Médecine*, in 1850. The customary phenomena of acute anterior poliomyelitis are the following: There is a sudden attack without appreciable cause, in early childhood, the motor paralysis rapidly reaching its maximum of intensity, and by degrees limiting itself to certain

muscles or groups of muscles which lose by degeneration their electrical properties and atrophy, while their tendons lose their reflex power. There are two elements in the anatomical process of this condition, the relative development of which causes considerable variation in the symptoms, one refers to the initial congestion of the gray axis, which results in such extensive motor paralysis for a few days, the lesion sometimes passing the limit of the anterior horns; the other concerns the destruction of the motor cells, which is much more limited than the congestion. The latter lesion, which gives to the atrophic paralysis of childhood its particular characteristics and its gravity, varies greatly in extent in each particular case, and is always much more limited than the initial lesion. The important question which the author desired to propound to the Section in Pediatrics was the following:—Are there cases of true infantile spinal paralysis, which retrograde and may recover without resulting in atrophy, and the reaction of degeneration in the muscles or the paralyzed nerves? To this question the author would reply in the affirmative and would base his answer and opinion upon the following case.

The child was a boy, nineteen months old, and was brought to the author by his parents, May 19, 1883, for paralysis of the lower limbs. His parents were in good health and had two other healthy children. None of the children had ever had convulsions. The patient was born at full time, was nursed by his mother for a full year, cut his first tooth at the age of ten months, and the others at intervals of considerable length from the first. At the age of eleven months he had whooping-cough. When one year old he was able to stand with assistance, and when sixteen months old he could walk about without trouble. The paralysis began when he was seventeen months old, the first observed symptom being that he moved his left leg with difficulty and limped in walking. There was neither fever nor convulsive nervous accidents at any time. Two months previous to the paralysis he had complained of pains in the left leg, and this had recurred several times in the form of crises, after which it disappeared entirely. Eight days after the first symptoms of paralysis appeared, the right leg was attacked with weakness. A month later the impotence of the lower extremities was complete. During the following month the child was seen by Professor Erb, who confirmed the existence of motor paralysis, but gave a favorable prog-

nosis in case suitable electrical treatment were used. The child's disease consisted entirely in complete functional impotence of the lower extremities, the muscles of which were flaccid and soft, but presented no appreciable atrophy. The muscular groups which were most affected in their functions were the anterior and external ones of the thigh and leg. The posterior ones were affected to a less decided degree. The patellar tendon reflexes were preserved, the right one appearing even somewhat exaggerated. There was no trace of contracture. The condition of sensibility could not be accurately tested, of course, in one so young. The vesical sphincter was not affected, the functions of the bladder were at all times normal, but constipation was very decided, defecation being difficult without the aid of injections. As to the electrical reactions there was general diminution in the faradic contractility, the peronei muscles yielding the most decided response of any. The galvanic contractility was normal, that at the negative exceeding that at the positive pole. The electrical treatment occupied, in all, about three months, the first period of one month and a half being followed by an interval of a month and a half, after which the second period began. The treatment was given almost every day and consisted (1.) In localized faradization or galvano-faradization of the crural and peroneal nerves of both sides. Excellent contractions were obtained by these means after a short time. (2.) General faradization with massage of the muscles of the hips and the lower extremities. (3.) Galvanization of the medullary focus, the positive pole being placed upon the abdomen and the negative upon the lumbar portion of the spinal cord. This was continued about five minutes at each *séance*. Improvement was very rapid and satisfactory, and at the end of the first period of treatment the child was sent away to the mountains. Upon his return the second period of treatment was carried out and a perfect cure obtained. A year after the treatment ceased he was examined again and no trace of the disease was found. In commenting upon this case the author observed that it presented some symptoms which were different from those which are ordinarily seen in cases of acute anterior poliomyelitis, but that these differences were not of capital importance.

(1.) In the given case the paralysis was preceded by paroxysmal pains, which simulated coxalgia, and which disappeared completely with the appearance of the paralysis. This may have been simply a coincidence or

it may have constituted the parasthesia which have been observed at the beginning of some recorded cases of atrophic paralysis. At all events it shows that the cause of the paralysis was not peripheral.

(2.) The paralysis in this case came on in a latent insidious manner, without fever or convulsions. This method is rare in acute poliomyelitis.

(3.) There was some dulness of sensibility at the outset, but no decided anesthesia. There was decided constipation, however, which appeared to date from the beginning of the paralysis.

(4.) The retention, or even the exaggeration of the patellar reflex, and the preservation of the galvanic reaction, the non-disappearance of faradic contractility of the nerves and muscles, are the factors which form the fundamental difference between this case and ordinary cases of acute poliomyelitis, and these factors justified the author in believing that there is a temporary and rapidly curable form of this disease of which his case was an illustration. In such cases all the muscles preserve their electrical reactions.

(5.) Finally, the author asks whether there is a relation of cause and effect between electrical treatment and the cure of the disease. His belief is that there is such a relation, though he admits that he is unable to say that his case might not have recovered eventually without any treatment at all. The indications for electrical treatment were that motor paralysis had been stationary for three months, that the muscles had become soft and flaccid, and that the faradic contractility was lessened. Improvement instead of being abrupt or magical, as in certain cases of reflex paralysis, was rather slow, though steady, and a complete cure did not result until the expiration of three months.

RHEN (Frankfort-on-the-Main): "*Subserous Inflammation of the Anterior Abdominal Wall.*"

The author recently found it necessary to differentiate between acute idiopathic peritonitis, and a diffused phlegmonous inflammation of the subperitoneal cellular tissue of the anterior abdominal wall, having been brought into contact with a case in which this latter condition obtained. The case was as follows: The patient was a girl six and a quarter years of age, who had a severe attack of dysentery when she was three years old, but after that was well until November, 1883, when she was seized with intense abdominal pain, continued bilious, vomiting, and high

fever. Her abdomen was swollen, tense, and very sensitive, and her breathing superficial. The temperature was elevated to 41.5° C. (axillary), the pulse was very frequent, there was constipation, and very painful urination. The vomiting continued four days; after the fifth the fever abated somewhat, the abdomen became less painful and sensitive, and urination became less troublesome. In this condition she remained about three weeks, at the end of which period a slight bulging was perceptible in the left iliac region, which, however, was unaccompanied by any feeling of fluctuation. On the second of January, 1884, there was an evacuation of an accumulation of pus into the intestine, which was followed by a purulent stool, this being repeated daily during the next eight days. During the first four or five days of this period there was a fall of the temperature, but this was followed by a decided rise, the temperature reaching 40.2° C. The child went into collapse, there was edema of the lower extremities, then of the hands and face. By the middle of January fluctuation was noticeable over a small area of the bulging portion, and an incision was made January 20th, at a point three fingers breadth above the navel. A quantity of offensive pus with an intensely fecal odor was evacuated. From the point at which the wound was made there was extensive separation of the peritoneum from its abdominal attachments extending toward the left. A second incision was made over the original swelling, and here also it was found that the peritoneum was detached from the abdominal wall in front of the bladder, and toward the right side in the iliac region. A third incision was also made by means of which the region just described was drained of a large quantity of pus. The entire space with which the three wounds communicated was then thoroughly irrigated with thymol solution, drainage tubes were introduced and a Lister dressing applied. The general condition rapidly improved, after this treatment, the temperature declining to normal. Three weeks later there was a change for the worse, deep fluctuation was observed in the left iliac region, and dulness in the left lumbar region under the eleventh and twelfth ribs. The second incision (of the original series of three) was extended backward, and the peritoneum was found detached backward and upward, also forward, downward, and to the left. At the lowest discoverable point of detachment an additional incision was also made. Fecal-smelling pus in abundance was

evacuated. The wound was irrigated with sublimate solution, and a large drainage tube was introduced. A few days later fecal matter was found in the lateral wound, and also in the one which was nearest the navel. After ten days, during which irrigation was carefully practiced and iodoform freely applied, the fecal discharge ceased, after which improvement was continuous. By the early part of the summer the child appeared quite well again. Bernutz gives the following points of differential diagnosis between cases of this character and peritonitis.

(1.) In cases of phlegmon there is a more limited pain, or pain centre from which the rays of pain dart out, as it were, into the rest of the body, and then return. In diffuse peritonitis the pains are far more intense and extend over a greater area of the body.

(2.) Nausea and vomiting, especially of a continuous character, are rare in phlegmonous disease, but are almost constant in peritonitis.

(3.) In phlegmonous disease there is retraction of the abdomen, in peritonitis distention.

(4.) In phlegmon there is an absence of the characteristic expression of countenance, and of the positive depression of the pulse, which is seen in peritonitis.

Gauderon, another writer upon the differential relations of these two conditions says, in addition to the foregoing, that an important symptom for phlegmonous inflammation, is a limiting ridge or border which can be appreciated within the abdominal tissues, also that a purulent intra-peritoneal exudate always makes a track for itself (in children) through the navel ring, while the pus in phlegmonous inflammation of the sub-peritoneal tissue perforates always and only outside the navel.

In the case which is related by the author the perforation was, as Gauderon declares it always is, outside the navel ring; but, on the other hand, no limiting ridge or border could be found. Neither was there any pain-centre which Bernutz says is constant; the abdomen, too, was distended and not retracted, and constant vomiting was present for days. Evidently the conclusions of Bernutz and Gauderon are not reliable in these respects, although in others they harmonize with the conditions which obtained in this case. The severe symptoms which were mentioned in connection with the given case are explained by the extension of the process and by its intensity, whereby it must be assumed that the peritoneum participated, though the morbid process did not go beyond

the stage of irritation, that is, of hyperemia (in so far as the peritoneum was involved).

It is to be observed that at no time in the course of this case was any intra-peritoneal exudate discoverable, and this is thought to be an important factor in making an early diagnosis of diffuse phlegmon. The occurrence of a circumscribed swelling in the abdominal tissues, at a later period, made the diagnosis of phlegmonous inflammation certain. In concluding, the author observed that in cases of this character early and extensive incisions should be made.

The Session was then closed by a short address on the part of each of the Presidents of the Section.

Rauchfuss (St. Petersburg) on behalf of his colleagues, thanked their hosts for their generous hospitality. As the result of their collective labors, there was not only the renewing of old acquaintanceship, and the formation of new ones, with the enjoyment which accompanies agreeable social relations, but there was the more important end of listening to the remarks which had been made in the various papers, and discussing and commenting upon the ideas which had been advanced, and the conclusions which had been reached. The *séances* had included the consideration of subjects in hygiene as well as in pediatrics, which showed that the latter specialty was not an isolated one. As a matter of fact it was shared by all who devoted their knowledge, their talent, and their labor to the care of youth. Though they were about to leave the place where they were assembled, it was not to be completely separated, for the speaker hoped, nay, was sure that many of those who were gathered there in that temple of science would continue to work together, inspiring by their works, true confraternal sentiments of sympathy and reciprocal respect.

These remarks were followed by A. Jacobi (New York), who also expressed his gratitude for the hospitalities which had been received, and the privilege of presiding over some of the meetings. With the large number of interesting subjects which had been discussed, it would be impossible for any one to go away without feeling that he had obtained useful and fertile impressions. The questions discussed had not only been those which have a bearing upon common human interests, but those which involved social considerations as well. The courtesies and attentions which had been received during the progress of the Congress should remind them of their

obligation to science and to mankind. While the author claimed a special interest in pediatrics, his constant ambition was to be a general practitioner. This aspiration would never prevent him from loving children, from studying their nature, their physiology and pathology, and from joining his colleagues in every effort to foster pediatric science. He hoped to welcome his audience at the next meeting at Washington, and at his own home.

The Section was then declared closed by the President (Hirschsprung), who thanked all for their participation and endeavors during the Congress, but especially the two who had shared with him the labors and the honors of the chair.

MEDICINE.

Giesler: Subcutaneous Cold Abscesses in Scrofulous Children in Their Relation to Tuberculosis. (*Jahrb. f. Kinderh.*, B. xxiii., II. 1 and 2.)

Koch's investigations showed that tubercular disease, wherever located, depended for its cause upon the presence of the spore *bacillus tuberculosis*, this being the evidence, when found, of the tuberculous character of the complaint, and its absence equally showing a non-tuberculous character. The same disease is likewise producible in animals by inoculation with cultivations of this spore. It is also affirmed that all inflammations in which the spore is found, or the products of which cause bacillar tuberculosis in animals, are equally of a tuberculous nature. The question naturally arose, then, as to whether the tubercle bacillus was to be found in those diseases which resemble tuberculosis, both clinically and as to their pathological anatomy, especially in the case of scrofula, and the results which were obtained varied, some investigators finding tubercle bacilli in all cases, others only occasionally or not at all. In lupus the testimony is unequivocal as to its tuberculous character. In scrofulous eczema no bacilli have been found in almost all reported cases. In the class of cases which is under discussion, namely, subcutaneous cold abscesses in scrofulous children, investigation was first made with the microscope, but after a large number of examinations, with most powerful lenses and very careful search, only a single bacillus was found. Seven cases were then selected, and, with material which was obtained from them, inoculation was practiced upon

guinea-pigs and puppies, both by subcutaneous and intraperitoneal application. In all cases only negative results were obtained, and the conclusion was reached that abscesses of this character, of circumscribed development, and developing from granulation tissue, do not depend upon bacillar tuberculosis, although they may contain giant cells and other lymphoid formations, from which it used to be thought that they were of tuberculous origin. They are manifestations of scrofula but not of tuberculosis.

A. F. C.

Somma: Splenic Anemia in Children. (*Jahrb. f. Kinderh.* [from *Arch. di Patol. Inf.*, 1884], B. xxiii., H. 1 and 2.)

This work, by the lamented founder of the *Archivis di Patologia Infantile*, was cut short by his recent death. He first classifies and briefly sketches the various forms of cachexia and anemia to which children are subject, including both the symptomatic and the essential. Next follows a series of thirteen cases which came under his personal observation, including the *post-mortem* results in so far as they were attainable. The table includes the histories of eleven boys and two girls, varying in age between three months and five years. The definition which is given to the disease is the following: Splenic anemia is a severe form of progressive anemia, which affects mainly the early period of childhood, and depends principally upon an hypertrophy of the spleen. Next follow in course the symptomatology, clinical history, and consequence of the disease process. As essential symptoms he mentions a whitish yellow discoloration of the skin, which is almost pathognomonic, and which corresponds in its variations with the progress and severity of the disease, also the enlargement of the spleen, which may be considerable, and finally the fever, which is continuous in the severe stages of the disease, remittent during periods of improvement, and at times may give place to apyrexia. The causes of the fever are not known. Occasional accompaniments of the disease are disturbances of digestion, swelling of the liver, disturbances of the circulatory apparatus, such as anemic murmurs, and bleeding from the nose and skin. The central nervous organs, and those which preside over respiration and tissue change show no disturbance. The duration of the disease is always very protracted, the course being unfavorable in most cases, the patients either dying in a cachectic condition or from some intercurrent disease. In rare cases there are improvement and recovery.

A. F. C.

Bibliography.

LETTERS FROM A MOTHER TO A MOTHER ON THE FORMATION, GROWTH, AND CARE OF THE TEETH. By the Wife of a Dentist, "M. W. J." Honorary Member Southern Dental Association ; Corresponding Editor Archives of Dentistry, St. Louis, and Southern Dental Journal, Atlanta. Welch Dental Co., No. 1413 Filbert Street, Philadelphia. Third edition.

This little book, as the title denotes, is for the use of mothers. One prominent feature is the explicitness with which it is written, containing very few technical terms, and these the writer has taken pains to elucidate, so that any mother of ordinary intelligence can comprehend the meaning of all that it contains. That not enough attention is given to the care of children's teeth no one will dispute, and anything on this subject that will act as a stimulus in the right direction is indeed commendable and deserving of encouragement. A description is given of the formation, growth, and how to preserve, not only the teeth, but the whole physical organism. We have also stated the principal varieties of food in which are found the necessary elements for the normal development of the teeth together with the proper diet for infants.

In the letter on "Dentition and Disease," the authoress very reasonably takes the position that "a child ought not to suffer any more in cutting its teeth than do the young of domestic animals," and gives the causes of the gastro-intestinal disturbances usually attributed to "teething," namely ; improper diet and feeding, lack of precautions in clothing the child, and the "diet, dress, and general habits" of the mothers. Had the writer concluded the letter at this point, she would have done well ; as it is, however, our own experience, which has not been limited, does not support the statement which follows, that the development of the teeth causes "swelling, redness, and inflammation of the gums." When this old fallacy is gotten rid of, the more rational will become, at least a part of, the treatment of sick children.

We hope in the next edition of the work to see this part of the epistle rewritten, also the advice in regard to lancing the gums.

J. D.

MEDICAL NEWS AND NOTES.

WILLIAM F. WAUGH, A.M., M.D., in an article in the *Physician's Magazine*, says :

"In using malt extract in various diseases of childhood, I have noticed that the subjects frequently lose weight and get quite thin. At first, I attributed this to the laxative action of such extracts as contain a little bran; but this was a mistake, as the loss of weight occurred in some cases where there had been no relaxation of the bowels, but where there was the greatest improvement in the general health. The children were manifestly stronger and heartier, though their body weight had decreased."

IN London, England, for the first time since 1883, a week has passed without the registration of a single death from smallpox. Sixteen cases were, however, reported.

DR. WILLIAM B. CARPENTER, the eminent English physiologist, author of "A Treatise on General and Comparative Physiology," "The Microscope and its Revelations," etc., died Tuesday, November 10th, in the seventy-third year of his age. Dr. Carpenter met his death from the effects of burns caused by overturning a spirit lamp while taking a vapor bath.

PROF. E. LE MONTAIS, of Detroit, will travel west and north-west during January and February, in the interest of THE ARCHIVES OF PEDIATRICS. Prof. Le Montais, who is a gentleman and a scholar, has been a warm friend to this journal since its inception, and we bespeak for him a cordial welcome among the physicians he may visit.

WE have received the Christmas number of the *Western Bookseller* (Chicago, J. Fred. Waggoner), an exceptionally handsome and richly illustrated issue of this popular journal. Our medical friends who want to keep posted as to current literature and new books will find the *Bookseller* a most acceptable monthly visitor.

"ARE you having much practice now?" asked an old doctor of a young beginner.

"Yes, sir; a great deal, thank you."

"Ah! I am glad to hear it. In what line is your practice particularly?"

"Well, sir, particularly in economy."

THE publishers of THE ARCHIVES OF PEDIATRICS have made arrangements with various eminent specialists for a series of scientific articles on the different branches of Pediatrics during 1886.

PROFESSOR TARNIER, of Paris, has succeeded in raising two children born at the sixth month, in his *couveuse*, or artificial mother.

A MAN has invented a chair that can be adjusted to eight hundred different positions.

It is designed for a boy to sit in when he goes to church.

WE LIKE A KIND WORD.—A prominent physician, whose name we should like to give, in renewing his subscription to the ARCHIVES OF PEDIATRICS, writes: "I am well pleased with the journal, and think it is invaluable to the general practitioner.

ANOTHER says: "I think the ARCHIVES OF PEDIATRICS meets a *real want*, and as such will prove a great success."

SEVENTY YEARS INSANE.—Elizabeth Pearson died recently in Bloomington Asylum, at the age of eighty-five years, from chronic mania. According to the death certificate filed in the Bureau of Vital Statistics, the unfortunate woman had been insane for seventy years. She had been attended at the asylum since 1882 by Dr. Sanger Brown.

A WORK of convenient art, worthy of a place in office, library, or parlor, is the Columbia Bicycle Calendar, just issued by the Pope Manufacturing Company, of Boston. Each day of the year is given upon a separate slip, with a cycling quotation, newsy, or otherwise interesting.

THE *Western Druggist* thinks that to prevent the dispensing of morphine for quinine a strip of steel should be firmly riveted over the mouth of the vial containing it, the neck being first plugged with a torpedo so arranged as to explode and shatter the steel when the poison is taken in hand. If the clerk survives he will know that the shock meant morphine.

DR. WM. FROTHINGHAM, of New York city, accidentally killed himself, on November 18th, while cleaning a pistol. He was an eminently successful practitioner, and his sudden death has aroused much sympathy among his many friends.

FROM statements made at the recent meeting of the New York Charity Organization Society it appears that at least one-third of all who apply to our medical institutions for aid are unworthy of free treatment. It was also stated that the average physician spends at least one-third of his time in charitable work.

DR. G. KROSZ writes to the *Deutsch med. Zeit.* that the removal of a plaster-of-paris dressing is greatly facilitated by first scraping a groove with a knife, and then dropping along it a solution of caustic soda. In a few minutes the plaster becomes pulpy along this line, and the bandage can then easily be cut through. If two lateral grooves be made, instead of one, a lid can be cut out of the bandage, the leg can be lifted up for the necessary inspection and returned, the lid being reapplied and retained, with a roller bandage. By this method, also, it is a very easy matter to cut any fenestra that may be needed.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

FEBRUARY, 1886.

[No. 2.

Original Communications.

SURGERY OF THE GENITO-URINARY ORGANS
IN CHILDHOOD.

BY DE FOREST WILLARD, M.D.,

*Surgeon to the Presbyterian Hospital, Lecturer on Orthopædic Surgery,
University of Pennsylvania, etc.*

WOUNDS OF THE PENIS.

The penis, in children, is an organ that is not only subject to the ordinary risks of traumatism, but is also liable to receive wounds inflicted by mischievous or malicious persons.

Incised wounds are not common, but if they extend into the body of the member, hemorrhage will be profuse: If the dorsal artery is cut, it may be secured by a catgut or carbolized silk ligature, but an ordinary bleeding from the helicine arteries will be best controlled by ice, or by applying a few sutures and gentle pressure by the hand of the attendant, or by a bandage over an inserted catheter, or by adhesive strips around a small enveloping mass of

sublimated absorbent cotton or other antiseptic material.

It should be stated *imprimis*, since the remarks will serve for all classes of injuries, that, in my opinion, no wound is properly dressed unless the utmost care has been taken to render it as clean and aseptic as possible. Especially is this true in regard to the penis, since the large spaces between the trabeculæ in the corpora cavernosa afford receptacles for a quantity of blood that may decompose and suppurate. Thorough irrigation with corrosive sublimate solution (one grain to the half pint of water, or 1 to 4,000 or 5,000), or any other antiseptic agent, as carbolic acid, hydronaphthol, etc., is as beneficial as the spray, provided it is used just before the final closing and sealing of the wound. The washing can be completed with a syringe after sutures are *in situ*, and there should then be no delay in applying the heavy layers of corrosive chloride cotton, gauze, and waxed paper.

It is not necessary for us to consider the question whether atmospheric impurities are bacillic, microbic, or otherwise; we do know that through the air are admitted to wounds those baneful influences that promote suppuration and prevent rapid healing; we know also that the best antiseptics are the best aseptics, and the antiseptic agent that will give the most thorough attainable cleanliness of hands, instruments, and dressings will secure the best results in union without suppuration.

An enveloping bandage for the penis is well nigh impossible in a young child, unless made of narrow strips of adhesive plaster; but with a diaper, or T-bandage, a large compress of antiseptic cotton can be maintained in position, and as wounds in children under two years of age are rare, the bladder is ordinarily under the control of the will, and soiling of the dressings need not occur. A wound thoroughly dressed should not be disturbed until it shows evidences of suppuration or decomposition, and should then be treated with all the rigid precautions as to cleanliness that were first observed. If sutures are now removed, there should be no further interference with the coverings until union has occurred. Erections in large boys will

require the restraining power of opium and lupulin suppositories, with bromide of potassium at night, or the fluid extract of *salix nigra* in teaspoonful doses.

Cicatrization and inflammatory thickening will deform the organ but slightly if quick union is secured.

The penis is sometimes almost entirely severed from the body by a sharp instrument, but so great is the vascularity of the parts that an attempt should be made to save the extremity, even though but a strip of supporting tissue remains, since the firm surrounding sheath of the cavernous bodies presents an excellent support for sutures, and union is not infrequent even when regarded as almost hopeless. The wound of the urethra which must accompany such an incision is the most important element and will receive further consideration under injuries of that canal.

Lacerated and contused wounds are often coexistent, and may well be considered together. They may be occasioned by falls, blows, kicks, etc., or by rude or vicious handling of the parts. The treatment should be conducted upon the same general plan as already described in speaking of incised wounds. As a dressing, the one already mentioned is most efficient in preventing inflammation, but if a wet dressing is desired, dilute carbolated water, or lead water and laudanum, or alcohol and water may be applied.

The preputial edema and general ecchymosis will often be very great, but the former is ordinarily easily reduced by the lotions mentioned, or by gentle pressure from adhesive strips, puncture being rarely necessary. Even should the connective tissue infiltration continue for months on either side of the frenum, it will slowly diminish, but if persistent, can be removed by an elliptical incision.

In young infants it is not unusual to see an *edema* which seems almost to originate without cause, but can usually be traced to a rough diaper, or to the irritating influence of urine, or to slight contusion. Laudanum and water, cosmoline, oxide of zinc, or other emollient will usually speedily relieve.

That extreme laceration, commonly known as *fracture*

of the penis, may occur in boys of large size, if a sudden twisting or bending force is applied while the organ is rigidly erect. Should the integuments remain intact, the extravasation of blood will be extensive, and there is usually but little difficulty in diagnosis. The sensation of tearing upon receipt of the injury, the hemorrhage and pain, and the bent condition of the member, provided one side is separated, specifically define the nature of the accident. To control the hemorrhage, ice-water cloths may answer, but if the separation is marked, it is better to incise the skin at several points, stitch the firm fibrous capsule of the corpora cavernosa with carbolized silk, and close the wound antiseptically. By this method the best possible union will be secured with the least possible deformity, since unequal induration would divert the course of the member so as seriously to interfere with the sexual act at a later period of life. The only splint that can be adapted to an organ so variable in size, is made by tightly wrapping the enveloping sublimated cotton with an adhesive plaster bandage, or by constructing a removable cylinder of gypsum. Erections must be rigidly controlled as before indicated.

Teeth wounds of animals or men are serious and often slow in healing, but in their inception are to be treated as are other lacerated wounds. Shot wounds are rare, and are to be managed precisely as are similar injuries in the adult.

Gangrene of the Penis.—Should excessive inflammation follow any form of wound, a slough will ensue, and a portion of the organ be lost. Gangrene in children is usually due to constriction caused by the pernicious habit of surrounding the member with cords, rings, etc. These may sink deeply into the tissues and be lost to sight, while the interference to circulation will steadily increase owing to the continual infiltration of leucocytes and serum. The extreme edema which accompanies such a blockade of the vessels, renders the removal of the constricting agent a manœuvre of great difficulty, even when the size has been reduced by punctures. If the cincture

is of metal, the points of bone-forceps will divide it better than a file or watch-spring saw, since the surrounding parts can be more readily protected. The subsequent frequent soaking of the part in a cup of hot water, together with lotions and pressure applied by adhesive plaster, will hasten the return of circulation. Should the difficulty be unrelieved, death of the organ may result and necessitate removal, but such a result is uncommon. It is reported that mortification has followed *paraphymosis*, but, while having treated many cases of this form of strangulation in boys, I have never yet seen so serious an ending. In a neglected case, I can, however, believe that partial death would be possible after the long delay which might occur, for instance, when a boy during masturbation had retracted a phymosed prepuce, and had been ashamed to expose his condition. I have seen bullæ in adults, formed by the constriction caused by a narrow foreskin having been forced behind the corona during the first intromission, and especially when the act had been repeated with the organ in this condition, but the sphaculus has been but superficial.

In acute gangrene no time is to be lost in releasing the member from the enveloping band, no matter what may be the constitution of the latter. In *paraphymosis*, the swollen parts anterior to the cincture may be reduced first by ice, and then by persistent pressure, either by the hand or by a narrow rubber bandage. It is useless to attempt reduction unless such diminution of the glans is accomplished. When the head is compressed, however, the skin can be slid forward by an enveloping hand, or by grasping firmly between the thumbs and forefingers the two sides of the prepuce, while the boy naturally pulls strongly away from the surgeon. A couple of probes or hair-pins slipped beneath the band facilitate the operation, but in case of failure no delay should occur, since a bistoury passed flatwise beneath the constriction can be made easily to divide it and release the grasp. The hemorrhage will be of benefit by unloading the engorged tissues. For this latter purpose punctures

or incisions should be made in the prepuce. Pure bromine should be applied only when the slough is advancing rapidly. In ordinary cases, iodoform powder or sublimate cotton will answer best for a dressing. The question of further removal of the prepuce, will depend upon the age of the child and the degree of phymosis.

WOUNDS OF THE URETHRA.

When the corpus spongiosum and urethra are severed, there is great risk of subsequent urinary fistula. To obviate this unfortunate result after incised wounds, the parts should be accurately approximated by numerous sutures, and a thoroughly antiseptic dressing applied in order to secure the most rapid union. The stitches should not pierce the membrane, but should embrace the sub-mucous tissues. Harmful as is the presence of a catheter in the bladder, it is here the minor evil, and must be retained from four to six days in order that firm adhesion may occur between the edges of the wound. Support may be given to the cicatrix during urination by the fingers during the next few weeks. Erections are very harmful and must be controlled by full anodynes at night, with camphor, lupulin, etc., in the rectum. An ice-bag may also be kept at hand for immediate application at the first filling of the organ.

Lacerated wounds are more common in the perineal than in the penile portion of the tube. Great contusion and sometimes entire rupture are occasioned by kicks, blows, etc. When the Blondin craze for tight-rope walking was at its height some twenty years ago, I recall several severe lacerations (in one case fatal) produced by falling astride of the rail of a board fence, or upon a bar or rope. Aside from contusion, which is to be treated by heat or cold and rest, the chief interest in this class of injuries lies in the danger of escape of urine from the canal, and its extravasation into the surrounding tissues. Should an opening exist, the direction taken by the urine will depend upon the position of such aperture, since the perineal fasciæ exert a marked influence in determining

the course. The anterior or urethral, or true perineal region, that portion in front of a line drawn between the tuberosities of the ischia, is covered first by the *superficial perineal fascia*, which lies directly beneath the skin and is continuous with the superficial fascia of the neighboring parts. This is sometimes called the first layer of the superficial fascia. Beneath it we come to the "second layer," which could surgically be well divided into two portions,—first, the *middle perineal fascia*, which constitutes the covering of the ischio-cavernosus or erector penis; the bulbo-cavernosus or accelerator urinæ, and the transversus perinei muscles. This fascia is attached to the rami of the pubes and the ischia externally to the crura of the penis, as far back as to the tuberosities, its posterior border curving down behind the transverse perineal muscle to be attached to the second portion, the *deep perineal fascia*, or *triangular ligament*, thus entirely cutting off the anterior from the posterior perineum. Anteriorly, it is continuous with the sheath of the penis. The triangular ligament, it should be remembered, is in no sense a ligament, but is a dense expansion of the fascia propria closing up the anterior portion of the inferior strait of the pelvis, being firmly attached to the symphysis and subpubic ligaments and along the rami of the pubes and ischia. It supports the prostrate gland, and between its two layers—one of which arises from the anterior lip of the ramus, the other from the posterior—encloses the membranous portion of the urethra, Cowper's glands, the artery and nerve of the bulb, a venous plexus, the pudic nerve and vessels, and the constrictor urethræ muscle. Its base becomes blended with the middle perineal fascia at the central tendinous point of the perineum.

These attachments will at once explain the fact that as long as they are intact, the urine, being shut off from the posterior perineum, can only make its way forward to the scrotum beneath the dartos muscle, along the under surface of the penis, and upward into the tissues covering the abdomen. It does not work down upon the inside of the thighs, nor backward toward the rectum, unless the prostatic region is injured.

Its irritating influence is at once followed by a violent connective tissue inflammation, which may produce sloughing in a few hours, accompanied by all the serious constitutional disturbances which are seen in rapid tissue-death. Should the fasciæ be torn, and at points which do not correspond with the urethral openings, as is not infrequently the case, for instance, when a boy is caught upon a nail while sliding swiftly down an inclined plane, there is then no interference to prevent the urine from infiltrating the whole perineum, and the grade of inflammation may be very violent. The systemic conditions are to be met with quinine, opium, and stimulants, but the local treatment in these cases becomes of the utmost importance. The presence of the urine in these tissues is sufficient to settle the question of injury to the tube, even though no external wound exists. When a catheter cannot be introduced, it is frequently stated that numerous punctures should be at once made in order to relieve the threatened tissues, but such a course only half accomplishes its purpose, since the cause of the difficulty still remains; and if free escape is not provided, burrowing will go on, since the aperture may be small and deeply situated. It is far better to at once etherize the boy, carry a staff down to the point of injury, and cutting down upon it in the median line, to carefully search for and lay open the canal at the site of the abnormal orifice. The urine will now have an easy escape; free punctures will relieve the already damaged parts, and the case can be treated as for ordinary external perineal urethrotomy—*i. e.*, the urine may be allowed to escape from the opening until it is partially closed, when bougies of good size should be daily inserted in order to assist in the reformation of the tube. A few days later, when the wound is still smaller, the urine should be drawn at stated hours, in order that no fluid pass over the narrowing opening, and that firm consolidation may take place.

In cases where the entire urethra has been torn across, the gap may be lessened by partially suturing the divided ends through the opening in the perineum. Fortunate

will it be for the lad if an intelligent surgeon has been summoned early, as a catheter will then have been carried into the bladder, if possible, before any attempts have been made at urination, and extravasation will have been prevented. As before remarked, the presence of the catheter is a lesser of two evils, and it must be worn until signs of vesical irritation gives evidence that it is becoming incrustrated. If of large size, and with an opening at the end, it will be wise before withdrawal to insert a long filiform bougie, which can remain while the catheter is withdrawn, and will be of great service as a guide in the re-introduction. It is the difficulty of re-insertion that deters many surgeons from removing the instrument even when they feel that its presence is harmful, but if this plan is adopted failure will rarely occur. Should the means not be at hand for carrying out this procedure, another excellent method which I have followed, is to place the forefinger of the left hand in the rectum, and the thumb outside upon the perineum while the first instrument is being withdrawn, a correct impression of the position of the urethra being thus obtained. Then, before the parts have time to close, a metal catheter is carried down and guided to its destination by the retained thumb and finger, while the direction of the course is, as it were, "fresh in their minds."

Opinions as to the time during which the catheter should be retained vary greatly, some arguing that its discontinuance is not safe until the rent is thoroughly united. My own practice, in tractable boys, is to dispense with it as soon as the acute swelling has subsided; supposing that no extravasation has occurred, and that no wound has been made externally. By this time the route of the canal has become well known, and a catheter can be carried in so gently that but little disturbance of the parts need be occasioned, if the patient is quiet. The water can be drawn at such intervals as will prevent it from passing over the urethral wound.

Even if the surgeon is summoned after swelling has occurred, he should not despair, if efforts at urination

have not taken place. The most untiring patience and the most skilled and gentle manipulations will often be required, but the benefit to be derived from the introduction of the catheter is so great, that no known means of safe success should be omitted. Ether should, of course, be administered, since few children are able to endure so tedious and painful an operation. The utmost delicacy of touch will be required to recognize the true from a false route. Many surgeons recommend the gum catheter, but I must confess to such a lack of skill that I have never been able to pass a soft instrument after having failed to introduce a metal one. The reverse, however, has frequently occurred. The size should be the largest that the meatus will possibly admit, since its introduction is safer and drainage is less likely to occur around it.

When the urethra has been entirely torn across, it will usually be impossible to reach the bladder safely, and a perineal opening will be required.

Should the surgeon be summoned late, when great swelling and pain are already present, with complete retention, he should always first attempt the introduction of a catheter during anesthesia, and failing in this should perform the perineal incision in all cases where the existence of extravasation is certain. If in doubt, he may aspirate the bladder above the symphysis until his diagnosis is established.

The treatment of such wounds in children is much more difficult than in adults as the pain of any manipulation is often severe, and a catheter once inserted in the bladder in a case where frequent attendance is impossible, may be allowed to remain until some vesical irritation manifests itself—*i. e.*, provided the instrument is preventing extravasation. It may be withdrawn and re-inserted during anesthesia, and remain to the full limit of endurance, after which, when the time arrives for the regular and stated withdrawal of the water an adept nurse or parent may be instructed in its proper use. If a perineal section has been made, of course a catheter will not be needed for some time, during which the extreme sensi-

bility of the parts will pass away, and the tenderness of the mucous membrane may be obtunded at a later period by injections of cocaine through the wound and urethra just previous to the catheterizations.

The constitutional and local treatment of lacerations and contusions will depend upon the severity of the symptoms. Small ice-bags to the perineum are of great service, but if painful, may be replaced by hot-water bags or other warm applications, with the enforcement of absolute rest. Full anodynes by rectum and mouth will be absolutely necessary.

Urethral wounds in girls are uncommon, except when produced by falls upon a sharp-pointed body which penetrates the vagina, in which case the laceration of this canal together with the quite possible injury of the bladder or intestines, renders the case one of exceeding gravity. The urethra may be also contused or even lacerated in a young child by a forcible violation at the hands of a villain, whom to call beastly is to cast a disgrace upon the superior animal. The treatment of such a wound would depend upon the condition of surrounding parts, but if the torn edges could be brought together by sutures, an attempt should be made to secure union, a catheter being worn for five or six days, and the urine drawn for several days succeeding its removal. The vagina should be packed with antiseptic cotton and gentle vaginal injections of hot mercuric chloride water used daily, the strength being about 1 to 10,000.

(TO BE CONTINUED.)

CEREBRAL PNEUMONIA, WITH REMARKS ON
THE REDUCTION OF HIGH TEMPERATURE.
AND ON DIET.¹

BY JOHN M. KEATING, M.D.

Visiting Obstetrician and Lecturer on Diseases of Women and Children.[*Reported by WILLIAM H. MORRISON, M.D.*]

GENTLEMEN.—I shall this morning present, in the first place, a child, who until to-day has been too ill to bring into the lecture room. I shall read the notes as furnished by the resident physician, Dr. Jenkins. At the time that it was taken sick, the child, two years old, had been in the house for three months, but had previously suffered only from temporary disorders of digestion. As far as could be learned, the father and mother were healthy. The evening of November 29th, the child was restless and cross, and the resident's attention was called to it. At this time, the temperature was 100°, but it was difficult to count the pulse on account of the restlessness of the child. There was also irritability of the stomach. A fever mixture, consisting of sweet spirits of nitre and liquor amonii acetatis, was ordered and the child put on the use of lime water and milk in small quantities. The following morning the temperature was 102.5°, the child was still restless, throwing its arms about and rolling its head. I would ask special attention to the last symptom. The child was irritable and cross, but exhibited no tendency to convulsion. There was no cough. The eyes were normal and there was no strabismus. At this time I saw the child and ordered quinine by suppository, mustard foot-baths, and bromide of potassium; the fever mixture was continued.

On December 1st, the temperature was 104.4°. At this time the child was ordered a general warm bath once a day, and the other treatment was continued. Still there

¹ Clinic lecture delivered at the Philadelphia Hospital.

was no cough. The noon temperature was 104.8° . The bath was repeated, and at this time five grains of bromide of potassium were given, and frequently repeated on account of the restlessness and nervous symptoms. The afternoon temperature was 103.2° , and eight o'clock in the evening the thermometer registered 99° .

December 2d, A. M., temperature 103.4° ; P. M., 102.5° . Treatment continued. The child had been vomiting, was restless, and rolled its head from side to side, and was extremely irritable. There was great general hyperesthesia during this time.

December 3d, A. M., temperature 101.5° . As some cough had been noted, the fever mixture was stopped and carbonate of ammonia with syrup of ipecac and a few drops of paregoric was substituted. One grain of quinine in suppository was given four times a day, and whiskey was used in the form of a milk punch. The evening temperature was 102.5° . Careful and repeated physical examination of the chest had been made during the whole sickness, but until this time nothing abnormal had been noted. The evening of December 3d, dullness on percussion over the left apex posteriorly was discovered. This child, as has already been stated, had no cough for several days after the beginning of its illness, and yet here was a pneumonia of the left apex which had given rise to cerebral symptoms so marked as to almost throw us off the track. The only evidence of pulmonary trouble was that the respirations were too rapid to be entirely explained by the high temperature. They were quick and short. The pulse also was extremely rapid and feeble, and so continued even when the temperature was reduced. To-day, with a normal temperature, the respiration and pulse are out of proportion to it.

December 5th, I was called to see the child at 2.30 A. M. The temperature was 100° , the child was relaxed and limp, the head was hot and the extremities cold, the pulse was quick, and the pupils somewhat fixed. Five grains of bromide of potassium had been given, and mustard foot-baths with cold to the head were employed. The

child had still some vomiting and diarrhea, but this was attributed to the irritant action of the carbonate of ammonia, which at times will have this effect. It was therefore ordered a small dose of castor oil, to be followed by an enema of starch and laudanum. The bromide was repeated.

As soon as the pulmonary lesion was detected, a jacket poultice was applied and kept in position for several days. It was then replaced by a cotton jacket, and a stimulating liniment was applied to the chest two or three times a day. At this time, the suppositories of quinine were stopped, and the quinine was administered by the mouth with the syrup of yerba santa.

You see from the temperature chart which I hold in my hand, that there was a sudden rise of temperature from the first day, the highest point reached being 105°. The temperature then gradually fell, but the morning temperatures continued in excess of the evening temperature. This is rather unusual, and was taken as an evidence of the absence of hectic, for if this had been present, an evening rise would have been expected. The child has gradually improved, and to-day is much better. It still has a little loose cough and loss of appetite, and suffers from the weakness incident to its severe illness.

These cases are not very common, and when they are met with are exceedingly puzzling on account of the difficulty of determining exactly where the lesion is located. Cases like the one before you, which begin with high temperature and every evidence of cerebral trouble, require very careful investigation for a local cause. Cerebral pneumonia, that is pneumonia which is accompanied by marked evidences of irritation of the nervous system, is usually seated at the apex of the lung, and being, as a rule, confined to one side, often escapes detection, and indeed is difficult to find before consolidation takes place. Although in the present case, the chest was carefully examined several times every day, yet it was not until consolidation occurred that we knew exactly where the lesion was located. I cannot demonstrate the physical

signs, for at present the child is suffering from nothing but the bronchitis which always accompanies pneumonia.

Before speaking of the treatment, let me say a few words in regard to the temperature. I find the groin the most convenient place to test the temperature in children over a year, in infants the rectum is to be preferred, in old children the mouth or axilla; in the report you should state where the temperature was taken. We are particularly careful in the affections of children to study the temperature, for, as is well known, the temperature record gives many valuable points in making a diagnosis, and in connection with the treatment. The first question is as to how much reliance is to be placed on the record of the thermometer in studying the diseases of children. My own opinion is that the presence of fever found only at one examination has little significance. It is the persistent high temperature that is of importance. By this I mean that the temperature remains permanently high as determined by several examinations, a number of hours apart; for instance, if one evening the temperature is found to be 101° , the following day, morning, 100° , and that evening 101.5° , we know that there is some condition which is more or less permanent in character. If called to see a child, who is restless, vomiting, who cannot sleep at night, with probably a little cough, and an evening temperature of 102° or 102.5° is found, I think in such a case it would be a mistake to be excessively alarmed. My own experience in a careful examination of the temperature of children shows that the least thing that upsets the nervous system will sometimes cause an extraordinary rise of temperature. Lately, we have had several cases which go to prove this in this house. We find that a little indigestion, a little catarrhal trouble of the throat, stomach, or intestines, which practically amounts to nothing, will cause a marked rise of temperature. It is the catarrhal troubles that give rise to the highest accidental temperature in children, so that undue alarm must not be excited by high temperature in children. If, however, the temperature remains high after several examinations, there is cause for alarm.

These acute diseases have their own range of temperature throughout their course, which might be termed the normal temperature of the disease. It should be the aim of the physician to keep the disease within these limits and not to attempt too severe methods to suddenly bring about the normal temperature of health. Let the affection run its course.

We next speak of the method of reducing excessive temperature. Those cases in which the temperature reaches 104° or 105° , and remains there for four or five days, require a different treatment than do those in which the temperature rises accidentally from some functional cause. The first measure adopted in our case was the warm foot-bath, the object being by derivative action to have perspiration induced with a consequent reduction of temperature. Secondly, quinine was given and as the stomach was irritable, the remedy was given by suppository. In using quinine in this way, I should advise you to use the sulphate, for the bisulphate is irritating. In order to affect the temperature it is necessary to give the remedy in large doses. Its persistent action should be invoked by giving it in doses of one or two grains every three, four, or five hours, until the temperature is controlled. In giving large or frequently repeated doses of quinine to children, where head symptoms are prevalent, I guard it always with bromide of potassium. The action of the foot-bath or general bath is to reduce temperature, and the action of quinine is to keep it from again rising. Of course, quinine when given by the mouth is more effective, and it has been used by hypodermic injection, but I have never employed this method in children. If the child is old enough and the stomach is in good condition, the quinine may be given by the mouth disguised in the syrup of yerba santa. In the present instance, the use of quinine and warm foot-baths did not reduce the temperature very much. The brain seemed congested and convulsions were feared. A general bath was then employed with the hope of producing free perspiration. In ordering a warm bath it is

necessary to give the nurse or mother instructions to see that the water is of the proper temperature, for if this is neglected, the child will frequently be placed in water which is entirely too hot. The child should be wrapped in a blanket, and gently put into the water and left there for some time, say ten or fifteen minutes, until a glow appears over the body. The sudden shock to the skin is not desired, but we wish the blood to remain permanently in the capillaries and promote the action of the sweat glands. After the child is removed from the water, reaction takes place, and it is this action that causes the reduction of temperature. The difference between the effect of hot water and that of cold water, when applied to the surface of the body, is that the reactions which follow are exactly inverse at first. The secondary effect of hot water will be to cause chilling of the body. It produces a surface congestion which is followed by anemia. In the application of cold, the temperature will be reduced for the time being, but the secondary reaction will bring it up, unless something is given to prevent the rise. In this child we relied on the warm bath, the application of cold to the head, and the administration of quinine to control the temperature. We also acted on the eliminative organs and especially on the skin by diaphoretics. A fever mixture of sweet spirits of nitre and liquor amonii acetatis was given. This latter preparation is especially valuable where the development of one of the zymotic diseases is apprehended. The theory has been advanced, and it is sustained by experience, that the acetate of ammonium has a desirable influence on the poisons of the acute exanthemata of children. At first there was nothing to guide us in determining what was to follow. It was for a time suspected that there might be a poison, like that of scarlet fever in the blood, which was acting on the nervous system. Children have frequently died from scarlet fever without ever showing the slightest trace of eruption, death being due to the direct action of the poison on the nervous system before irritation of the skin occurs.

The warm bath was used to reduce temperature and

also with the object of bringing out the eruption of any zymotic disease which might be present. It will do this. I saw the other day a child suffering with German measles in which the eruption occurred only in patches, and there was considerable irritation of the nervous system. A warm bath was applied and the eruption came out over the body, and the brain was relieved. Where symptoms of brain irritation with high fever come on suddenly in a child of this age who has not had scarlet fever, the probabilities are in favor of the development of that disease. For several days, we feared such an occurrence in this case, and at one time there was a little redness on the skin which looked something like an eruption, but finally proved to be only the efflorescence from the irritating applications which had been made.

When the evidences of pneumonia were discovered, the child was at once placed on the use of carbonate of ammonia and poultices were applied. The results of this treatment you have before you. The medicinal treatment in these cases is very important, although very simple. There have been various agents recommended for reducing temperature. Among these are digitalis and quinia, and lately a remedy termed antipyrin, which is said to be valuable in reducing temperature. It is said that a grain and a half to three grains, to each year of the age of the patient, will reduce the temperature of the patient to almost normal and keep it there for several hours. I have used it in several cases of pneumonia in infants of a year to a year and a half, and the result has been what is claimed for it. It will reduce temperature but the reduction will only be temporary. I have seen no bad results from its use.

Where the temperature goes very high, say 105° , and is unmanageable, death may result simply from the excessive temperature. Hyper-pyrexia, sunstroke, or thermic fever, or whatever you choose to call it, will produce death in children as well as adults. In such cases it is often difficult or impossible to reduce the temperature by the measures already mentioned, and it is necessary to have

recourse to the cold bath. Occasionally, in the high temperature of typhoid fever, meningeal irritation, and blood-poisonings of various kinds, it will be necessary to have recourse to cold water. It is important to understand how to apply this method of reducing temperature. When I say cold water, I do not mean ice water, although ice has been used, especially in scarlet fever where the temperature is very high. Under this treatment, according to many authorities, the temperature will be reduced and the course of the case shortened. I have, however, never used ice water in children's practice, although we have used ice water in this house in adults in whom rheumatism has attacked the cerebrum, and in other cases of high temperature. In the many cases of children, I believe that it is only necessary to use water, the temperature of which is below that of the patient. If there is a temperature of 103° , for instance, keeping up for several hours, water at the temperature of 70° , 80° , or 90° will be sufficient. Such a temperature will not be really cold, while it will be cold as compared with that of the child. By keeping the child exposed to such a temperature for some time, the bodily temperature will be reduced. For this purpose the child may be placed in a tub of water, but this is clumsy. Another and better way is to place two chairs with their backs to each other, and make a cot by stretching a piece of blanket from one to the other. This can be saturated with water, and the child placed in it and covered with a sheet or blanket. By keeping these blankets saturated with water, a constant evaporation takes place. This is a convenient plan, and has the advantage of not frightening the parents. Then, again, the water may be medicated, and it is astonishing how little medication will overcome the objections of the parents. A little vinegar in the water, while it has this effect, will also increase the good effect of the cold water. In throat troubles, such as laryngitis or tonsilitis, the general temperature and the local inflammation and congestion may be kept under control by the application of cold, wet com-

presses to the throat. Another excellent way of employing cold is by the application of cloths to the abdomen, and especially is this the case in typhoid fever. In employing any of these methods for reducing temperature, the thermometer should be used frequently.¹

The next point to be spoken of is the question of diet. It is of the greatest importance to have a correct understanding of the diet of children in sickness. A child, as ill as this one was, cannot, of course, support the ordinary milk-diet of a healthy child. Under such circumstance, the digestive juices are in small amounts, and the large amount of mucus in the stomach and bowels interferes with their action. If milk is given, the casein will be precipitated, and pass through the bowels in this condition. Various things have been recommended. Whey has been used by some. While this is an extremely nice preparation, it is not very nourishing. Condensed milk in the same way is a good preparation, especially when prepared fresh for daily use, without sugar. When we come to toast-water and such things, they contain still less nourishment. Of late, partially digested milk has been substituted for all these other preparations, and has acted well. The best form of diet is probably this form, peptonized milk. What do we mean by peptonized milk? In the digestion of cow's milk there is no difficulty with the salts and albuminoids, but when it comes to the casein the difficulty arises. The action of gastric juice on cow's milk is to coagulate the casein in thick large lumps, while in the mother's milk the casein is coagulated in flakes. The casein is digested to a great extent by the pancreatic fluid. If a child is fed on plain cow's milk, it may escape trouble for a few days, but in a short time it will begin to mass the undigested curds of casein. Sometimes these masses in the bowel will undergo decomposition, giving rise to irritation, and producing entero-colitis and even death. They may give rise to impaction, and I once made an autopsy in a child where death had resulted from a curd in the bowel which

¹ See article on this subject in ARCHIVES for 1885, by William Perry Watson, M.D.

could not pass. It is, therefore, important to find something that will do away with the curd, or digest it, or enable the child to digest it. The curd, may be removed by coagulating the casein with rennet, and giving the child the whey. In condensed milk the curd is precipitated in the same form as in mother's milk, but condensed milk is wanting in the cream, so that if a child is ordered condensed milk, a certain amount of cream should be incorporated with it. The absence of the cream is one of the causes of constipation following such a diet.

The experiments of Dr. William Roberts, F.R.S., of England, have shown that we can have another form of food by digesting the casein with a preparation of the ferment of the pancreatic fluid. By adding this material to the milk before it is given to the child, we are able to partially peptonize the milk. Or, if the process is continued sufficiently long, the milk may be entirely digested. I believe that this solves the question of the diet for many children. To the peptonized milk, lime salts may be added in the case of rickety children, and, if necessary, cream may also be added to the milk. Cow's milk, with the addition of a little water and sugar, and peptonized, very closely resembles mother's milk, both in its chemical analysis and in its effects.

The method of applying this process is as follows: take about a gill of water in which to dissolve a powder, consisting of five grains of *extractum pancreatis* and ten grains of bicarbonate of soda. The pancreatic extract is supposed to act only in an alkaline fluid, but this is a mistake, for it will act even in a slightly acid solution. A pint of milk is next warmed to about 110° , and the water in which the powder has been mixed is then added. The object of first mixing the extract with water, is to prevent the coagulation of the casein from the curdling element which the extract contains. A convenient way, is to have the child's bottle nearly filled with the warm milk, and after the proper quantity of extract—about two grains—is mixed with the water, add it to the milk in the bottle. It should be allowed to stand for a few minutes,

and then give to the child. The process will then continue in the child's alimentary canal. It should be made fresh every time. Should this form act too freely on the bowel, lime water should be substituted for the water and soda before recommended.

In feeble cases, where rickets is suspected, I frequently add to the milk a grain or two of the lacto-phosphate of lime, with sometimes remarkable results.

In the case before you, the consolidated lung quickly showed signs of resolution under a treatment which was supporting in character. Subcrepitant *râles* were heard over the dull portion of the lung, and coarser *râles* were found in the larger bronchial tubes. In an adult, it would probably have been advisable to blister, but in the child I preferred to substitute poultices or cotton wadding, and then paint the chest with tincture of iodine. The carbonate of ammonia was again given in small and frequently repeated doses. We have also used quinine by the mouth, milk punch, and beef extract or peptonoids. Occasionally, a dose of castor oil has been given in order to carry off the mucus. The preparation of wine, beef, and iron would be an excellent tonic, and, as soon as possible, cod liver oil, either as hydrolein or in simple emulsion, given with small doses of iodide of potassium, should be administered. The child should have abundant fresh air by thoroughly ventilating the room.

ON HIP DISEASE IN CHILDHOOD.

BY G. A. WRIGHT, B.A., M.B., OXON., F.R.C.S., ENG.

Surgeon to the Children's Hospital and Assistant Surgeon to the Royal Infirmary, Manchester, England.

[CONTINUED FROM PAGE 10, JANUARY NUMBER.]

To sum up the diagnostic points of hip disease a patient who is a child, who walks lame, especially after a little exercise, who has thickening of the trochanter, and some

tenderness on pressure over the hip-joint or upon jarring the trochanter or heel, and pain in the knee together with slight flexion and some immobility of the joint, without evidence of spinal or sacro-iliac disease or pain in any part higher than the hip, and in whom pain is increased by abduction or rotation inwards, has got disease of the hip. Night starting is a valuable, but not a constant nor always trustworthy sign. Later in the disease the problem is usually easily solved, but not always, for as indicated above, disease of the trochanter or abscess around the joint may simulate it very closely, as well as bursitis; in such cases the position and swelling of hip disease, as well as its rigidity, are very closely simulated, and he must rely on other points. Such conditions can, however, only be mistaken for the later stages of the disease, in which there will be shortening of the limb, raising of the trochanter, and probably grating in the joint if examined under chloroform.

Chronic disease in adults does not differ markedly from that of children in its symptoms, but is usually slower in development and the health not unfrequently suffers more. Synovitis may be diagnosed according to Barwell by tenderness on pressure over the joint, but not on pressing the trochanter towards the acetabulum; in this I cannot agree with him, and I think that pressure over the front of the joint is not by any means a trustworthy indication, unless pressure on the trochanter also gives rise to pain, for we must remember that we are very likely to press upon a nerve trunk or possibly a tender gland in front, and may be misled by it.

Believing, as I do, that chronic hip disease begins invariably, or nearly so, as an ostitis, I cannot follow Barwell's distinctions in the diagnosis of the two. I do, however, think that acute synovitis can be distinguished from the other form in its early stages by the greater constitutional disturbance and greater pain on movement of the joint, with absence of trochanteric thickening, and under chloroform free and perfect mobility; there may be also swelling in front of the joint, but this depends upon the amount of the effusion.

Acute ostitis is readily diagnosed, great constitutional disturbance, fever and prostration, great pain amounting to agony on the least movement, *helplessness of the limb*, rapid and extensive swelling with venous turpidity make the diagnosis easy.

Diagnosis of Stage of the Disease.—Here, I cannot do better than summarize Mr. Maenamara's views on the diagnosis of the kind of disease present, and I may say that my own experience largely accords with his. He says that after an injury, excessive pain coming on within fourteen days, with distention of the joint, is probably due to either acute epiphysitis or synovitis, the former not often in children over five, and the disease is attended by considerable constitutional disturbance and signs of supuration.

Acute traumatic synovitis, he says, generally sets in within a few days with much pain but seldom high fever, without rigors or much local heat; sometimes, indeed often, the local heat is considerable, but with great tenderness and rigidity. If the disease begins with no very definite symptoms, lameness, slight pain, pain on deep pressure, and resistance to free rotation, the case is probably one of osteomyelitis (tubercular), especially if the patient is scrofulous.

Mr. Howard Marsh, in his valuable paper in the *British Medical Journal* for 1877, gives us most useful information on the diagnosis of hip disease. Thus, he points out that though flexion may be free in some cases, the flexed limb is carried into abduction and not straight up towards the abdomen; again, flexion may be limited in cases of gluteal, or extension in cases of psoas abscess, but in hip disease both are limited in their more extreme degrees, even if free in part of the range of mobility. His caution as to the dangers of frightening the muscles into spasm is also well worth remembering. Rectal examination for thickening of the inner wall of the acetabulum I have not found of much value, for it is marked only where the disease is far advanced.

Barwell speaks of a neutral period between the second

and third stages of the disease, and considers that it corresponds to the bursting of the capsule after its distention, it will, therefore, correspond to the time during which, suppuration having escaped from the joint is making its way to the surface, there is no doubt that in many cases after a time of considerable pain relief follows, and we later find an abscess, and it is well to be aware of this and not be deceived into thinking the disease is subsiding. In most cases, however, there is no distinct line to be drawn, especially where the symptoms are chronic throughout, and the position of the child may be that of the second stage and yet there may be sinuses or a large abscess. Sayre records a case where the transition from the second stage to the third—*i. e.*, from abduction to adduction took place in one night—but the case gives rise to suspicion of its being a traumatic dislocation of a diseased hip. Although the division into stages is convenient, I do not think it is wise to push it too far, and we can hardly expect the progress of morbid action to follow always a definite course. Mr. Adams points out that a state of acute pain often indicates the transition between the second and third stages (those of abscess in the joint and external to it), and that it terminates in external abscess or dislocation, when this occurs it is probably due to bursting of the capsule and relief of tension, but it is by no means a constant or even, I think, a very common symptom. He lays stress upon the fact that hectic, startings, and malpositions with local heat, tenderness, and swelling may all subside with extension, and do not necessarily involve suppuration. This, I think, applies only to synovitis coming on acutely, or to acute attacks of inflammation coming on in the course of the chronic disease; in the case of synovitis, rest and extension may, and probably will, cure the disease, but where there is ostitis already existing, the relief will be only temporary, and any use of the limb will light up inflammation anew.

I have already described what I believe to be the most important factor in distinguishing the actual condition of the joint. During the period of pure ostitis there is no

external swelling; thickening of the trochanter indicates pus in the joint; external swelling means rupture of the capsule.

I would here deprecate the use of any of the means of diagnosis which necessitate giving pain to the patient. Although I have mentioned the various plans of eliciting pain in disease of the joint, I believe that it is hardly ever necessary to employ them, the presence of disease is recognizable by the painless mode of examination in all cases where it can be made out at all.

PROGNOSIS—RELAPSES.—As regards prognosis and the results of the disease when treated by means other than operation, it is necessary to distinguish clearly between the two morbid conditions of synovitis (acute) and ostitis, acute or chronic; and here again the difficulty arises of reconciling the opinions of various writers who hold different views of the pathology of the disease.

Brodie says that some cases of synovitis get well with perfect mobility, others, in which some swelling remains, are prone to relapse.

When suppuration once occurs, Brodie says that adults very rarely, children more frequently, recover, but seldom without complete ankylosis; while if suppuration has not taken place, the joint recovers its mobility. He lays great stress on the curability of the disease before suppuration sets in, and observes that even after considerable destruction of cartilage, the joint may be movable, a fact certainly true in the case of the knee; in the hip I cannot verify it from observation.

As regards "scrofulous disease" of the hip, Brodie believes that it may act as a safety valve against similar disease in other parts in some cases, or again may be a focus from which it may take origin.

Erichsen says that ankylosis may occur with or without suppuration, and this is undoubtedly true; while if pus has formed, ankylosis may be the result, or else a false joint—the upper end of the bone resting on the dorsum ilii. He remarks that if no suppuration occurs, and the head of the bone remains in the acetabulum, bony ankylosis may occur with but little shortening.

As regards "arthritic" variety, he says, it may result in partial or complete ankylosis, but that when suppuration occurs, adults very seldom recover, especially if the bone is effected; but that even cases of bone disease, secondary to arthritis, may recover if not tuberculous.

He adds that the prognosis of "primary femoral tuberculosis" without operation is very unfavorable, and disease of the pelvis, if primary, necessarily fatal without excision of the disease; while if the pelvic disease is the result of the femoral, the prognosis is better, and dislocation is the first step towards recovery.

He comes to the conclusion that when once the hip-joint is inflamed, more or less lameness will invariably result.

Bryant remarks that inflammation may exist in the joint and subside, and yet suppuration takes place around, but unconnected with it. He says that recovery may take place from synovitis, but that ankylosis will probably occur in cases of articular osteitis, and that when suppuration exists, the majority end in fibrous, the minority in bony ankylosis. He sums up by saying that where there is no abscess there will be a movable articulation, where the cartilage is degenerated there will be ankylosis; while ankylosis without suppuration is commoner after articular osteitis than after primary synovial disease; also, that where the disease begins in the epiphysis, or epiphyseal cartilage, recovery with movement is rare, because the articular cartilage loses its nutritive supply and degenerates, or the epiphysis becomes detached.

Copeland, in Ford's book, records a case of free mobility with sinuses, and half an inch shortening only; but the diagnosis, I think, questionable, at any rate it is most unusual.

Holmes tabulates the prognosis as follows:—

1. Before pus forms there may be complete recovery or some limitation of movement by fibrous bands.
2. After abscess appears there *may* be mobility, but it will be impaired.
3. When caries develops, recovery rarely takes place,

unless the bony surfaces are dislocated from one another, and hence there will be loss of motion and deformity, with compensating spinal curves.

He believes that where there is bone disease, death is a common (though by no means necessary) result.

Prof. Gross differs from all other authorities in his assertion that "the mortality from coxalgia is slight in almost any event, even if there is palpable neglect;" a statement entirely at variance with general experience, and qualified by himself in another part of his work by the opinion that young adults seldom recover if suppuration occurs.

Macnamara believes that a large percentage of cases of synovitis in children are rapidly cured. Some cases, too, of epiphysitis recover, and the younger the child the less chance of necrosis; but he says acute epiphysitis seldom ends without considerable shortening, and the danger of suppurative osteomyelitis and pyemia.

Osteomyelitic cases, he remarks, do not improve, but "get worse month by month," and he wisely lays stress on the frequency of tubercular disease elsewhere in these cases, especially if a high temperature is maintained.

Relapses and Residual Abscess.—The frequency of relapse in cases of hip disease is only too obvious, and is due to the permanent impairment of vitality of the tissue first affected, or to extension from the seat of old disease. It often occurs as the result of fresh injury, or too early and incautious use of the limb, or as a result of failure of health from other causes,—*e. g.*, some intercurrent illness, scarlet fever (a most fertile source of fresh suppuration in old inflammatory foci in children), measles, and so on. This may occur many years after an apparent recovery.

It is important, as Mr. Howard Marsh points out, to distinguish between a *relapse* of the joint-disease and a *residual abscess*. The latter being merely the result of the irritation of some quiescent *local* product of former inflammation, and having no tendency to spread when once the irritation is relieved, the former being a proof that no consolidation of repair in the original lesion has

taken place, hence it tends to progress as in the first instance.

My own conclusions as to the prognosis and result of disease of the hip treated without operation, are in great degree the same as those arrived at by Mr. Macnamara and others (*vide* Gay, *Lancet*, 1872). Cases of acute synovitis recover perfectly, with freely movable joints under proper treatment, and show no after ill effects, though the treatment required is usually longer than that for other joints.

Cases of osteitis very rarely, if ever, recover without entire destruction of the upper epiphysis of the femur, usually accompanied by abscess, and always result in shortening, with more or less deformity, and a very large majority die; very few, indeed, reach adult life, and they are cripples, with ankylosed or stiff and to often useless limbs, almost always flexed and often adducted as well. These are the cases that go about from hospital to hospital until, at last, they are excised or die of hectic, lardaceous disease, exhaustion, or tuberculosis.

Cases of acute osteitis very frequently die, in fact, almost all die, unless they are operated on; if they recover, it is with a condition like that described in the chronic cases.

It is only by following up cases that have been recorded or cured by means of non-operative treatment, that it is possible to arrive at the truth that these so often relapse.

Thus, out of nearly 100 cases, of which by inquiry I have tried to learn the sequel, at times varying from a few months to three years, I have only been able to trace some 35; a few of these have been re-admitted into hospitals as the result of my inquiries. Of the rest, 31 in number, 8 are well, 5 in good condition but not well, 9 remain unrelieved or have relapse, and 9 are dead.

I believe the frequency of relapse is very much greater than is represented by the above statement.

(TO BE CONTINUED.)

VARICELLA AND ITS DIAGNOSIS.¹

BY HENRY ASHBY, M.D., M.R.C.P.

Lecturer on Diseases of Children in Victoria University, and Physician to the General Hospital for Sick Children, Manchester.

GENTLEMEN.—There are some diseases which derive their importance, not so much on account of their threatening life, or of their being liable to be followed by impaired health, as from the fact that they are often mistaken for some much more serious disease. The early recognition of zymotic disease is of the greatest moment to the patient and his friends, and there are no errors which we are apt to commit for which we are so likely to be censured, as errors in diagnosis. The demands of the public on our knowledge and wisdom are apt to be unreasonable and their judgments harsh if we commit ourselves to a diagnosis which is falsified by subsequent events. Varicella is one of those diseases which shines as it were by borrowed light, and which derives its significance from its resemblance to its dreaded congener small-pox.

It is hardly necessary for me to spend much time in insisting upon the specific nature of chicken-pox and its entire distinctness from small-pox, though there are still some who believe in their identity. Among all the zymotic diseases there is a great family likeness and some of the members of the family exceedingly resemble one another in their general character, and in the similarity of their eruption, and yet we have many reasons for believing that they are distinct diseases, though often possibly modified by circumstances but little understood, so as to resemble one another more at one time than others. Thus a catarrhal tonsillitis may closely resemble diphtheria, or scarlet fever, or it may be exceedingly difficult to say whether a given case is scarlatinal or diphtheritic, rōtheln may closely simulate measles, or chicken-pox mimic small-pox. Many facts, however, point to

¹ A lecture delivered at Owens College, Manchester.

a specific distinctness between the two last-named diseases. They are not mutually protective, as children who have recently had small-pox, or been recently vaccinated have been attacked with chicken-pox. During the epidemics of one disease, the other is not generally unusually prevalent. Small-pox affects all ages, chicken-pox affects children almost entirely. Inoculation with the virus of small-pox produces an attack of small-pox; and chicken-pox when successfully inoculated produces only chicken-pox (Steiner).

Varicella can be communicated from the sick to the healthy by inoculation, by simple contact, or by the infection being carried by a third person. Trousseau failed in his attempts to inoculate varicella, Steiner seems to have been more successful, succeeding in eight cases out of ten.¹ While there can be little doubt that varicella is mostly communicated by a child convalescent from an attack coming in contact with a healthy child, yet it is certain that the infection can be carried, as I have several times noticed cases occurring, in a children's ward, in children who had been many months in the hospital, and where no cases had occurred previously for a long interval.

It occurs in epidemics in schools, workhouses, and among the poorer classes, but its epidemics are not so wide spread as those of measles, nor do they affect so large a proportion of the unprotected, and if it occur in a ward it is not so certainly followed by other cases as is the case with measles or scarlet fever. As already remarked, it affects children almost entirely; out of 584 cases observed by Baader, in Basle, 93 were under 1 year, 70 between 1 and 2 years old, 219 between 2 and 5 years, 191 between 5 and 10 years, 7 between 10 and 15 years, 2 between 15 and 20 years, and 2 (?) between 20 and 40 years.² Thus 65.4 per cent. were below 5 years of age, and 98 per cent. below 10 years. One attack for the most part protects from a recurrence, though Gerhardt has reported some exceptions to this.

¹ Wien. Med. Wochenschrift, No. 16, 1875.

² Jahrbuch für Kinderheilkunde, Vol. xvii., p. 104.

The incubation in the inoculated cases reported by Steiner was eight days, when contracted in the ordinary way it is generally fourteen days, though often a day or two more. We have had several opportunities in our wards of testing the correctness of this. The premonitory fever is short, from a few hours to twenty-four hours. Indeed, in the majority of cases, the appearance of the rash is the first symptom to call the attention of the friends to the illness of the child. In this respect varicella offers a marked contrast to varioloid, inasmuch as the premonitory fever is often severe and lasts two or three days. In some cases the outbreak of the exanthem is preceded by a general redness of the body, resembling the roseolous rash which precedes small-pox, giving rise to the suspicion that the case is one of scarlet fever. I have also seen a case in which a measly rash preceded the vesicular eruption, and gave rise to the suspicion that the child had both measles and varicella, and it was never quite certain if this was not the case. Prodromal symptoms for the most part are absent, the rash being the first symptom. Canstatt has noted cases in which there were frequent micturition present, and this was the case in one of my own cases. (Case II.) Convulsions rarely or never occur.

The temperature is not, as a rule, characteristic, but is generally of an intermittent type, there being a marked rise in the evening; the temperature being highest at the height of the disease on the third or fourth day, when the greatest number of vesicles are present. The temperature is, as a rule, proportional to the copiousness of the rash. Mild cases are almost entirely feverless, in severe cases the temperature may rise suddenly to 104° or more, as in Chart I.

The rise of temperature is accompanied by an accelerated pulse, coated tongue, restlessness, and an eruption of slightly elevated papules, resembling the rose spots of typhoid on the trunk, abdomen, back, and extremities. In the course of a few hours, indeed, probably when the first examination is made, some of the papules are becoming converted into small blebs or vesicles, containing clear

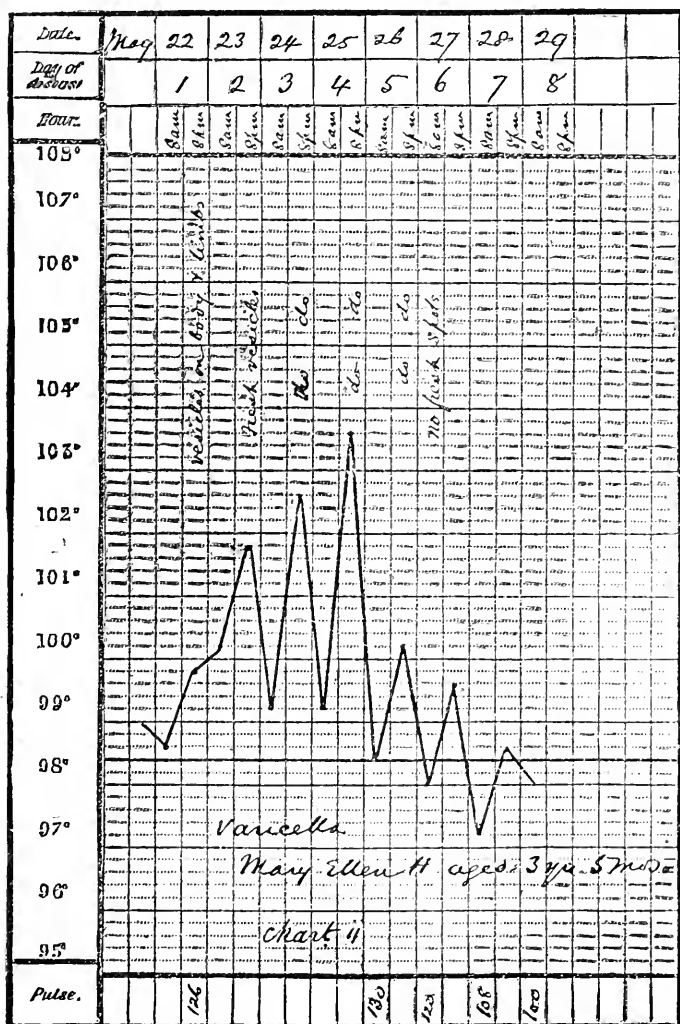
fluid and surrounded by a zone of redness. By the next morning fresh crops of papules and vesicles have appeared, and the vesicles of the previous day are larger, though some of them may have aborted and commenced to dry up. Fresh crops appear on the third, fourth, and fifth days and perhaps later still, so that by the third or fourth day, in a severe case, the trunk, extremities, and scalp are thickly covered with vesicles and scabs, which are more sparsely scattered on the face, tongue, and soft palate. The contents of the vesicles mostly become cloudy in the course of a day or two, rarely purulent, they then dry up and scabbing takes place in a few more days, which may be extended to a week or more. The scabs drop off leaving clear skin beneath. Sometimes, especially in weakly children or when there is much scratching, ulceration takes place beneath the scab, which is some time in healing, leaving a circular depressed round scar. The vesicles are unilocular and their upper surface is convex and collapses immediately they are pricked, though this is not universally true, as in some cases the vesicles are seen here and there flattened, umbilicated, and multilocular, closely resembling small-pox or vaccination vesicles. The number of vesicles vary greatly, in some cases only a few are to be seen, in others many hundreds. They are never confluent.

Varicella is, as a rule, a mild and trifling affair, the patient recovering completely as soon as the eruption is at an end, occasionally, however, the symptoms are severe and the temperature continuously high, and in one case under my care, suffering from chronic nephritis, the attack ended fatally. In uncomplicated cases it is never fatal during the eruptive period, though when the ulcerative process goes on and a gangrenous condition supervenes, death may take place from exhaustion or pyemia.

As illustrations of tolerably severe cases of varicella, the two following which arose in hospital during convalescence from scarlet fever may be taken.

Mary Eliz. H., age one year nine months, was convalescent from scarlet fever, for which she had been admitted

are a large number of papules and vesicles on abdomen, extremities, and back. May 17th, many fresh papules and vesicles; some of the papules disappear without



becoming vesicular; some have rather a shotty feel, tongue coated. May 18th, a few fresh spots but smaller than they were, many scabs. May 19th, no fresh spots, others fading. May 22d, spots mostly faded or scabbed over.

Mary Ellen H., aged three years six months, admitted April 29th with scarlet fever, on May 21st it was noticed she had frequent micturition some fifteen or sixteen times during the night. May 22d, this morning there are many clear vesicles over body and legs, none on face; tongue dry and furred; pulse 126; temperature 99.8° (see Chart ii). May 23d and 24th, many fresh vesicles. May 25th, tongue covered with vesicles; at least fifty on arms, backs of hands, fingers, chest, thighs, and feet, about a dozen on the face. The eruption is to be seen in all stages, some drying up, a few semi-purulent, most surrounded by a zone of redness. They consist of a single cavity; a few are flattened. May 26th, many vesicles with semi-purulent contents; many others crusting; a few fresh ones. May 28th, no fresh spots, most of the vesicles have dried up; a few pustules. June 3d, still a few scabs about face and limbs.

As already remarked, varicella is generally a mild and uncomplicated disease which is quickly recovered from and which rarely threatens life. The complications are not numerous nor frequent, but it is well to bear the possibility of their occurrence in mind. Eustace Smith has known acute tuberculosis to follow varicella. Henoch reports some cases of nephritis eight to ten days after, and Mr. Hutchinson has called attention to a peculiar gangrenous action which sometimes takes place at the site of the scabs. In such case, for what reason is by no means clear, the vesicles become bulbous, closely resembling those of pemphigus, discharging their purulent contents and leave deep ulcers, with sharp cut edges, death ensuing from exhaustion or from pyemia, with abscess in the lungs. A similar condition has been described as pemphigus gangrenosa. The following case illustrates this complication.

Annie C., aged two years, was brought to the Children's Dispensary June 4, 1885. The mother stated that a rash like chicken-pox made its appearance two weeks before on the face, back, and front of the body, some of these became larger and filled with "matter," then the

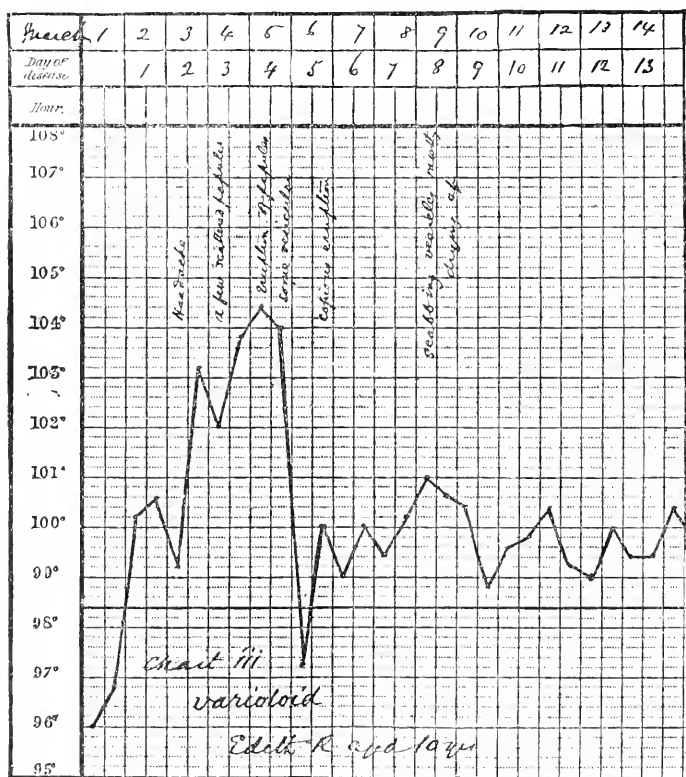
skin became rubbed off and left ulcers. On examination of the child, there were ten or twelve deep ulcers on the back and also in front, some were one-half inch to three-quarters of an inch in diameter, nearly one-quarter of an inch deep, and bled easily. There were some blebs the size of peas, surrounded by a zone of inflammation. The child was very weakly and anemic, but ultimately recovered, the ulcers undergoing cicatrization. There was a history of coryza and rash about the buttocks, and it is possible that this case may have been a vesicular syphilide, but I am inclined to think that was an example of *varicella gangrenosa*.

Diagnosis.—It is not generally a matter of much difficulty in varicella to make a diagnosis, on the other hand, in a few cases, there is very considerable difficulty, and often this may happen when it is a matter of extreme importance to arrive at a correct diagnosis. Occasionally a vesicular syphilitic eruption may simulate varicella, vesicular eruptions are rare in lung syphilis, and when present are generally seen in connection with bullæ of various sizes and also with pustules. They are not accompanied by fever. In a case reported by my colleague, Dr. Hutton, "In the Abstracts of Cases Treated at the Children's Hospital," for 1884, an eruption (apparently syphilitic) of vesicles, somewhat hard and shotty, seated on an inflamed base, made their appearance in a child of three years; the vesicles appeared in crops for ten days, each vesicle lasting about six days, leaving some staining. The diagnosis between syphilis and varicella would turn on the history of the case, the presence of other forms of specific rashes, as bullæ or papules, their distribution and the temperature.

The disease which is likely to give rise to difficulty in diagnosis is varioloid, that is, small-pox occurring in vaccinated subjects, and hence of a mild and benign character. The difficulty can only arise in the case of children, inasmuch as varicella is extremely rare in adults. Small-pox is most likely to be confounded with varicella in children, with measles, lichen, or with some syphilitic

rashes in adults. The following case of varioloid is of interest as illustrating what is a common type of an attack in a child.

Edith R., aged ten years, was convalescent from scarlet fever, and had had a normal temperature for several weeks. On the morning of March 2d, the temperature was 100.2°, rising in the evening to 100.6°, she was kept in bed on



account of the feverishness, took her food all right and said she felt well. March 3d, headache, but appetite good, no rash, evening temperature 103.2°. March 4th, much headache, eyes suffused, face flushed, blush over abdomen and body, a few minute papules, like typhoid spots, around umbilicus and on limbs, none on face, no sickness, diarrhea, or pain in back; tongue dry and glazed strip

in the centre, the rest coated and moist; drowsy: headache; spleen enlarged one and one-half inches below edge of ribs, evening temperature 103.8° . March 5th, this morning, temperature 104.4° ; headache; on the arms, back, abdomen, face, there are red hard papules, some becoming vesicular at their apices.

March 6th, temperature has suddenly fallen during the night, this morning it is 97.2° , says she feels quite well. Her face and neck are completely covered with "shotty" papules, many also on trunk and limbs, in some places on the shoulders the papules are confluent. There are some vesicles, many of which are flattened and umbilicated, others are small, monolocular like chicken-pox vesicles. The subsequent history of the case was that some of the papules disappeared, the vesicles did not mature, but scabbed over without the formation of pustules or ulcers, the secondary fever was present though slight. This case was an isolated one, the source of infection was probably from the mother of the patient, who resided four miles from the hospital, who had visited her twelve days before. Small-pox was epidemic at the time in Manchester, all the other children in the ward were re-vaccinated, and no other case occurred.

DIAGNOSIS.

VARICELLA.

Incubation.—Thirteen to sixteen days.

Premonitory Fever.—A few hours.

Premonitory Symptoms.—Mostly nil.

Rash.—Red spots, in a few hours becoming vesicular, drying up in three or four days, leaving crusts; come out in crops on four or five successive days on scalp, body, limbs, face, and mucous membranes. Vesicles mostly monolocular.

Temperature.—Intermittent in character.

VARIOLOID OR MODIFIED SMALL-POX.

Twelve days.

Two to three days.

May include pain in back, headache, vomiting delirium, drowsiness, convulsions, and fever.

Red, shot-like papules and soft palate, appearing first on face and wrists; during next twenty-four or forty-eight hours over body and limbs; papules become vesicular after two or three days, and pustules by eighth day of disease, or more frequently dry up, leaving scabs.

Sudden rise, reaches height when the rash is fully out, followed by a speedy fall. Secondary fever slight in modified cases.

You must not, however, imagine that modified variola always follows a typical course, the premonitory symptoms are often slight, the pain in the back may be absent, as in the case related, there may be only malaise or headache, or at times, especially among the poorer and non-intelligent classes, the rash will be the first symptom to strike the attention of the friends. The diagnosis then may be easy, or, on the other hand, may be beset with difficulties. Care must always be taken, not to lay too much stress on any one symptom, but the diagnosis must be made by a careful consideration of all the facts. Above all do not jump to a conclusion, and remember that more mistakes are made through carelessness than from want of knowledge. How long does the infection last? No case should be allowed to mix with his fellows till the scabs have separated and the skin beneath it quite smooth. This is probably accomplished within three or four weeks from the commencement of the fever. In one case which I admitted to the hospital, suffering from psoriasis which had succeeded the eruption of chicken-pox, and where some unhealed ulcers were present, though the child had had chicken-pox some five weeks before, was the means of the child in the next bed, and one or two more in the ward, contracting chicken-pox.

Regarding treatment there is not much to be said, a saline, as citrate of potash, may be given during the febrile stage, though probably most cases will get on as well without it as with it. A light fluid diet and an ointment containing some tarry or carbolic compound to apply to the scabbing vesicles, will be all that will be probably called for. Of course you will isolate your patient, who is not necessarily kept in bed, until his skin is clear and the ulcers healed.

SPASTIC PARAPLEGIA.

A Clinical Lecture given at the Chicago Medical College, December 22, 1885.

BY PROFESSOR M. P. HATFIELD.

(*Reported by MR. C. K. FLEMING, Clinical Clerk.*)

GENTLEMEN.—I am fortunate enough to-day to be able to present you with one of the rarer forms of paralysis, occasionally met with in children. Doubtless some of you may have recently read a paper (ARCHIVES OF PEDIATRICS, Jan. 1886), by Dr. Sinkler, of Philadelphia, on the subject of Paralysis in Childhood, to which I can hope to add little or nothing to-day, but to those of you who have not studied his exhaustive report the present case may have something of interest. Our case book gives us the following history :

Neil McN., American, aged nine years, comes to us without any further history than that he has been for several years an inmate of St. Luke's Hospital, where his case was diagnosed as infantile paralysis, and where he was circumcised without any improvement. For years he has been confined to his wheel-chair, but he is, as you see, a bright handsome boy of unusual precocity. He is unable to stand without support, for there is rigidity and contraction of both legs, more pronounced in the left, allowing only the toes to touch the floor as he stands and interlocking his legs into a sort of Chinese puzzle as he sits. A careful examination shows no fever, no pain, no loss of sensibility, no marked wasting of either limbs, nor disordered nutrition, or disorder of the functions of the bladder or rectum. Except his inability to stand, and the rigidity of the lower limbs, the boy's symptoms may all be said to be negative save an exaggerated patella reflex. From this cause the boy evidently dreads to be handled, but with a little gentle persistence the limbs can be straightened without pain, though they return to their former position as soon as the external force is removed.

Is it then a case of infantile paralysis? I should say

manifestly no; for in infantile paralysis we have atrophy of the affected limb, diminished temperature and circulation in the same, loss of electrical excitability, and abolition or lessened tendon reflex. None of these are present in this case.

Nor is it acute myelitis, for there we have sharp pain, tingling in the limbs, often localized anesthesia, and a feeling as of a tight girdle about the body. Furthermore, the sphincters of the rectum and bladder are frequently involved, but none of these symptoms are found in the present case; the boy being entirely free from pain, and all of his functions, except the use of his unfortunate legs, being well performed.

Neither is it paralysis from trauma, nor direct pressure upon the cord either from rickety bones or a carious spine, for evidently no such lesion is present, and the boy is clearly afflicted neither with rachitis nor struma. In fact these are but forms of myelitis, differing in nowise from the symptoms just given for that disease.

Diphtheritic paralysis cannot be suspected, for there is no previous history of diphtheria, moreover, diphtheritic paralysis is rarely persistent and never accompanied with contractions, but is with diminished sensation, as may be seen by the table, Page 107, prepared by Mr. Fleming.

Treatment in this case has been for years mainly expectant, but latterly there have been apparent good results from the use of ergot and calabar bean, alternated and used in conjunction. Intercurrent disease of any kind (he has passed through measles and pneumonia since my acquaintance with him) so greatly increase his reflex excitability that he can then only be kept from eclamptic attacks by the free use of the bromides and chlorates, but with these and the ergot physostigma he has safely weathered two serious sicknesses. Just now his most pressing need seems to be some sort of apparatus to prevent further contraction and to assist locomotion. Such, I think, can be constructed, and I shall take great pleasure at some later date in exhibiting to the class what has been done in this way.

	Onset.	Extent.	Sensation.	Tendo Reflex.	Temperature of Affected Part.	Muscular Change.	Electric Excitability.	Contraction of Limbs.	Sphincters.
Infantile Spinal Paralysis.....1.	Sudden.	Complete, followed by localization.	Undisturbed.	Lessened or abolished.	Lowered.	Atrophy.	Diminished.	None.	Normal.
Spastic Paraplegia.....2.	Gradual, preceded by weariness.	Rarely complete, lower half of body.	Undisturbed.	Greatly exalted.	Normal.	No atrophy. No change.	Undisturbed.	Very marked.	Normal.
Acute Myelitis .....3.	Sudden.	Complete.	Diminished.	Either abolished, diminished, normal, or exaggerated.	Falls, but not so great as in No. 1.	Muscles waste rapidly.	Diminished.	None.	Paralyzed.
Pseudo-hypertrophic Paralysis.....4.	Gradual, with extreme weakness.	Partial	Not disturbed.	Diminished.	Higher.	Both of atrophy and hypertrophy.	Diminished.	To some extent towards end of disease.	Weakened.
Paralysis from Pott's Disease.....5.	Sudden, with history of Pott's disease.	Complete.	Anesthesia.	Either abolished, diminished, normal, or exaggerated.	Falls slightly.	Atrophy.	Diminished.	None.	Paralyzed.
Diphtheric Paralysis .....6.	History of diphtheria.	Partial, and generally localized in fauces and pharynx.	Diminished.				Diminished.		In rare cases paralyzed.

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Cadet de Gassicourt: *On the Diseases of Childhood in General.* (*Rev. Mens. des Mal. de l'Enf.*, Aug.)

The following is an abstract of the opening lecture at the Hôpital Trousseau, in Paris, which deserves attention since it comes from so eminent a clinical teacher.

The diseases which are observed among children are those which are congenital, then those which are developed in the first years of life, next those which are more frequent in childhood than at other periods of life, upon which the factor age stamps a particular seal. Of the congenital affections the monstrosities are not considered by the author, since they are outside the domain of the clinic. Cerebral affections are first considered, which are developed before birth and which produce congenital idiocy. Sometimes they are caused by arrest of development of the brain, at others by more or less extensive sclerosis, with atrophy or hypertrophy. The resulting phenomena, in addition to mental incapacity with its unhappy consequences, may be those of paralysis and contractures of various forms. Deaf-mutism is developed sometimes before and sometimes after birth, but is almost always caused by a cerebral lesion which has its seat at the point of origin of the acoustic nerves.

Congenital affections of the heart include cyanosis in which the lesion is especially confined to the right heart, particularly to the origin of the pulmonary artery. In such affections there is almost always communication between the two hearts, either from want of occlusion of the inter-ventricular septum, or from persistence of the valve of Botallius.

Congenital syphilis also belongs, eminently, to the class under consideration, though in some cases the child at birth presents no evidences of the preliminary stages of the disease through which it has passed, and only shows the tertiary phenomena months or years afterward.

Of the second class of diseases of children, which may also be developed at all ages, mention is made of infantile paralysis, pseudo-hypertrophic paralysis, and rachitis, the

latter seldom appearing after the third year of life. It would be more proper to consider all three of these conditions effects rather than diseases, atrophic paralysis being due to acute myelitis and sclerosis of the anterior gray horns of the spinal cord, pseudo-hypertrophic paralysis a lesion of a greater or smaller number of muscles, and rachitis the result of various causes, among which syphilis and intemperance of the parents, insufficient food, and unfavorable hygienic surroundings may be mentioned. To this class should also be added the scrofulous affections, or, as the most recent pathology has it, the scrofulo-tuberculous ones.

The third class includes those diseases which are simply more frequent in childhood than at other periods of life. It includes diphtheria, whooping cough, mumps, the eruptive fevers, etc.

The fourth class includes those upon which childhood fixes a particular stamp or seal. Infantile cholera is a marked example of these, in which inanition often plays a prominent part, more prominent than at other periods, because of the extreme susceptibility of the digestive organs, and the feeble resisting power of the organism. Pulmonary congestion and broncho-pneumonia play also a prominent part in infantile pathology. Rheumatism has peculiar features at this period of life, and when it affects the cerebro-spinal system, as it frequently does, it is considered under the name of chorea. The relation of endocardial and pericardial disease to rheumatism is very significant in childhood. Diphtheria in childhood is usually more severe than in adults, and with the latter almost never takes the form of croup. Tuberculosis in children is characterized by a tendency to acuteness of attack, and general diffusion. Malignant growths among children are usually of the lymphadenomatous variety. Percussion and auscultation of the thoracic organs at this period of life are often much more instructive than at a later period, because of the moderate thickness, only, of the thoracic walls. The sides of the thoracic walls are also much more flexible in childhood than in adult life. This is of practical importance in those cases in which punctures or incisions are to be made. Children also bear elevated body temperature much better than adults. The sensitive character of the constitution of the former is seen in the readiness with which convulsions are excited when the disturbing element may be only a slight one; the same fact is indicated by the sudden attacks of fever which may follow causes which are apparently slight. A. F. C.

Heubner: Recent Therapeutic Agencies for the Treatment of Diphtheria. (*Jahrb. f. Kinderh.* [from *Archives Gén.*, Jan. 1885], B. xxiii., H. 1 and 2.)

Tetoldi had success with large doses of quinine, giving to children under one year of age, four to six decigrams daily, from one to three years six decigrams to one gram, from three to six years from one gram to thirteen decigrams; to adults two and a half to four grams daily were given. In addition, gargles of salicylic acid, alum, and chlorate of potash were freely used, with a liberal diet, including generous wine. Lamarre used applications of crude petroleum, inhalations of petroleum ether, and abundant nourishment, with injection of the latter into the stomach if necessary,

Delthil recommends the burning of a mixture of oil of turpentine and gas-tar in the sick-room several times daily. This method has been used by others with varying success. The mixture should contain one part of gas-tar to two parts of oil of turpentine. It should be burned in a vessel standing at the foot of the bed three times in the course of the day and once at night. Renon advises the introduction of a large volume of steam into the sick-room, the latter should not be very large and the temperature should be kept at 20° to 25° C. If the sick-room is very large the steam may be conducted into a tent which can be constructed over the bed in which the patient lies. A vessel containing two liters of water should be used, and to the water may be added carbolic acid and salicylic acid, fifty to one hundred grams of the former being used in the course of the day and twenty grams of the latter. Several have reported good results from this plan. Benzoic acid and alcohol have been recommended as a desirable addition to the carbolic and salicylic acids. For internal treatment cubebs and copaiva balsam have been recommended. Talbert recommends the following:

Ry--Bals. copaivæ, 80 grams;
 Ol. meuth. pip., 30 gtt.;
 Gummi arab., 20 grams;
 Syrupi, 400 grams;
 Aquæ, 50 grams.

A teaspoonful may be given every three hours, and the treatment may be continued until an urticaria is caused.

A. F. C.

Waxham: Treatment of Croup. (*Chicago Med. Jour. and Examiner*, June 1885.)

In the treatment of this disease the author approves of trypsin as one of the most, if not the most, valuable agents for dissolving the false membrane. His formula is,

℞—Fairchild's ext. pancreatis, gr. xv;
 Sodæ bicarb. gr. iij;
 Aquæ dist.,
 Glycerinæ, āā ʒss.

The mixture may be used with an atomizer, and great pains must be taken that the spray may reach the affected parts. Lime water is mentioned as an excellent solvent, but only when the membrane is immersed in it. The vapor from a boiling solution does not dissolve it, as was shown by exposing a large fragment of false membrane to the vapor constantly for three hours. In the given experiment the membrane was neither disintegrated nor softened. The author admits, however, that benefit may be derived from the heat and moisture of the vapor. The same piece of membrane which was exposed to the vapor was placed in a two ounce phial which contained an officinal solution of lime water, in seven minutes it had been completely dissolved. Another piece of membrane was subjected to the spray from a hand atomizer which contained the pancreatin solution prepared according to the formula already given. It was sprayed four times at intervals of half an hour, and at the end of that time the membrane was disintegrated. Again, a similar piece of membrane was sprayed with officinal lime water every half hour and was dissolved after six applications. A spray of a ten per cent. solution of lactic acid softened the membrane in three hours and a half, being used, as in the other cases, at intervals of half an hour. The membrane was not completely disintegrated however. The conclusions which were reached were: (1) A solution of pancreatin with soda and glycerine, furnishes the most satisfactory solvent. (2.) The spray of lime water will dissolve false membrane, but not so efficiently as the pancreatin. (3.) The vapor from boiling lime water is of no use as a solvent. (4.) Lactic acid is not a good solvent.

O'Dwyer's method of tubing the larynx in croup receives unqualified praise. Its advantages are: (1.) The tube can be quickly introduced and without danger. (2.) There is no mutilation. (3.) No wound as a cause of shock, or source of infection. (4.) The tube can be worn more easily

than a tracheotomy tube, and without greater hindrance to coughing and expectoration. (5.) It does not require constant attention as does a tracheotomy tube. (6.) Bronchitis and pneumonia are less likely to occur than when tracheotomy has been performed, the respired air being warmed on its way through the natural air passage. (7.) The operation is less likely to be objectionable to the parents.

Roth: Sulphate of Iron for Catarrh of the Stomach in Little Children. (*Rev. Mens. des Mal. de l'Enf*, [from *Conseiller Médical*] Sept.)

One of the most important symptoms of this condition consists in the acidity of the contents of the stomach and intestine. The material which is vomited has a sour smell and a greenish appearance. The same is true of the contents of the intestine. The parts which are bathed by these discharges,—namely, the anus, scrotum, vulva, become red. The green discoloration has been attributed to the use of calomel, but that does not apply to cases in which calomel has not been used. Absorbents are indicated to overcome the effects of the acids, and tonics to counteract the catarrh. In cases in which such treatment is inefficacious, the author has used sulphate of iron to good advantage. It acts as a disinfectant, the stools changing color and losing their bad odor. As an astringent, it contracts the turgid mucous membrane, and coagulates albuminoid substances. Its use should be continued several days. The following formula is suggested:

R \bar{y} —Ferri sulphatis, 0.1 gram ;

Mucil. acaciæ ;

Syrupi simp., āā 2.00.

Sig., A coffee spoonful every two hours.

A. F. C.

Wagener: Sedum Aere in Diphtheria. (*Therapeutic Gazette*, July 15.)

The author credits Duval, of Madrid, with the first article descriptive of the value of this substance (common name wall pepper) in diphtheria. Duval recommends its use in the form of a decoction, but the author objects to this as it is liable to produce gastritis or catarrh of the lungs. Its value in diphtheria depends upon its property of loosening the false membrane and thus preventing suffocation. It is, therefore, of no use in the first stage of the disease, but only after the false membrane has de-

veloped. The following formula is used and recommended by the author:

R \bar{y} —Fld. ext. sedum aere, f $\bar{5}$ j;
 Spts. Terebinthinæ;
 Acidi Lactici;
 Fl. ext. Aconiti, āā f $\bar{5}$ ij.—M.

This should be applied with a brush every three minutes for twenty minutes. If vomiting is not produced, a glass of warm water, containing a teaspoonful of lard, may then be given, and vomiting with expulsion of the membrane will soon follow. Examination of the throat should then be made, and any bleeding points may be touched with Monsel's solution. The author has never seen ulceration of the mucous membrane follow this treatment; nor has he seen a return of the false membrane after its expulsion by this means. He thinks that tracheotomy in croup and diphtheria may be dispensed with by its use.

O'Dwyer: Two Cases of Croup Treated by Tubage of the Glottis. (*N. Y. Med. Jour.*, Nov. 28th.)

The first case occurred in a boy three years of age, and was followed by recovery, although the diphtheria was complicated by a mild attack of nephritis. The tube used was two inches and an eighth in length, and of much smaller caliber than the tracheal canula in common use. The obstruction, which lasted fourteen days, was probably due in some degree to edema of the tissues of the larynx, superinduced by the nephritis. The second case, in a feeble infant of sixteen months, resulted fatally. At the autopsy, a thick deposit of pseudo-membrane was found in the larynx, trachea, and bronchial tubes, as far as the third or fourth division. In the majority of the fatal cases of this disease, after obstruction in the upper air-passages has been overcome, it is difficult to exclude incipient pneumonia, owing to the presence of more or less congestion and atelectasis, but cases with a high temperature and accelerated breathing, in the absence of anything else to account for them, must be attributed to the extension of the diphtheritic process into the bronchial tubes.

Brown: Observations on the Treatment of Scarlet Fever. (*Amer. Jour. of Obstetrics*, Nov.)

The practical questions to be considered in the treatment of scarlet fever are the grade of temperature, the

frequency of the pulse, the extent of pharyngitis, and of cervical adenitis, the degree of vital and nervous prostration, the condition of the renal organs, and the state of digestion. The following formula has been found useful in a high grade of fever and frequent pulse, associated, as it so often is, with nausea and vomiting:

R \bar{y} —Aq. calcis, $\bar{5}$ ij;
Tinct. aconit. rad., gtt. xij.

Sig., One or two teaspoonfuls to a child of one or two years every two hours.

The dose should be administered each time with a small quantity of cracked ice. In very high grades of fever, when vomiting and nausea are not present, the following antipyretic combination has been resorted to with decided benefit. It not only reduces fever, but acts as a diuretic and diaphoretic also.

R \bar{y} —Aquæ, $\bar{5}$ ij;
Arom. spts. ammon., $\bar{5}$ ij;
Sodæ bicarb., $\bar{5}$ ij;
Acid. Salicyl., $\bar{5}$ ij;
Tinct. aconiti rad., gtt. xij;
Syrup. aurantii cort., $\bar{5}$ j;
Tinct. digitalis $\bar{5}$ j.

Sig., Two teaspoonfuls may be given in ice every two or three hours to a child of five years.

For a prolonged case of the pyogenic form of scarlet fever, where there is suppuration in the petrous portion of the temporal bone or some other point as a beginning, the internal use of a combination of quinine, tincture ferri chloridi, and Fowler's solution of arsenic, is superior to all other remedies. Probably of all antipyretics, quinine is the most permanent in its action. We possess, so far, no antidote to the poison of scarlatina. Stimulants should be applied to counteract the effects of that peculiar poison, as in the case of the poisons of venomous reptiles and insects. Spts. vin. gal., $\bar{5}$ ij; spts. ammon. arom., $\bar{5}$ ij; aq. cinnamo., $\bar{5}$ ij; syr. simpl., $\bar{5}$ ij, is a very convenient form to administer stimulants. Two or three teaspoonfuls of this preparation may be given diluted every two or three hours. Iced milk with one-third lithia water, and a small amount of bicarbonate of soda, constitutes a nutriment suitable for all ages of scarlet fever.

In some recent cases of the anginose variety of scarlet fever, a solution of two per cent. of muriate of cocaine has been applied to the inflamed surface of the pharynx and tonsils by means of a small hand-atomizer. This has been found to relieve hyperesthesia, allay pain and irritation, and reduce the engorgement of the parts. As a means of cleansing and disinfecting the throat, which is always obstructed with accumulating offensive secretions, the following application is beneficial:

R_y—Aq. picis lig., ʒiiss;
 Acid. carbol., gtt. iij;
 Sod. bicarb., ʒss;
 Acid. benzoici, ʒi;
 Sod. boratis, ʒij;
 Mucilag. acac., ʒijss.—M.

The application should be made by means of a small globe syringe.

In numerous grave cases, complicated with infectious catarrh and rapidly increasing cervical adenitis, by using faithfully the following prescription, the doctor has been able to subdue the catarrhal affection, rob it of much of its infectious character, and reduce with astonishing rapidity the glandular affection:

R_y—Ol. olivæ, ʒijj;
 Vaseline, ʒj;
 Acid. carbol., gtt. iij;
 Sod. bicarb., ʒj;
 Sod. boratis, ʒij;
 Ol. pic. lig., gtt. ij.

M.—Sig., To be injected into the nostrils and nasal cavities every two or three hours.

In all cases of nephritis accompanied with dropsical effusion, envelop the body from the armpits to below the hips with spongio-piline, saturated with hot water, frequently renewed, and covered with oiled silk. In those cases attended with extensive effusion in the cavities, threatening apnea, scanty high-colored or bloody urine, dry skin, even in a child of four or five years, at least ten grains of submur. hydrarg., as a preliminary to other treatment, gives an impetus to the secretions which no other agent does.

MEDICINE.

Cheadle: *Heart Disease in Children.* (*Lancet*, Oct. 17th and 31st.)

In two clinical lectures, delivered at the Great Ormond Street Hospital, the subject is admirably discussed with especial reference to the etiology of heart disease in childhood, and its relations to rheumatism and chorea.

Seven classes of cardiac cases are met with in children.

1. Congenital cases, usually not valvular and not inflammatory, but in the nature of malformations of the heart walls.

2. A group, valvular or pericardial, due to inflammatory changes traceable to well-marked attacks of acute rheumatism.

3. A large group of cases, chiefly valvular some pericardial, associated with chorea, the exact relation between them where no concurrent acute rheumatism exists, being undecided.

4. A small number of cases, chiefly pericardial, some valvular, and some of simple hypertrophy and dilatation, arising in the course of Bright's disease and probably uremic.

5. A small number arising from scarlatina, measles, or more rarely, some other exanthem.

6. A small number resulting from pyemia or septicemia.

7. A group, including a large number of cases of valvular disease and some of pericarditis, for which no satisfactory cause has been made out, apparently not connected with any of the recognized causes above enumerated.

The cases associated with chorea and the last group are the ones particularly discussed, the others being pretty well understood, the author remarks.

The conclusion reached after minute and careful investigation of these cases is, that a very large proportion of them all are rheumatic in their origin. This has been overlooked, first, because in many patients the joint affection is so slight as to attract little attention; secondly, it may occur at a different time from that at which the cardiac affection arose or was first observed; thirdly, there may be no history of arthritic trouble in the patient, and yet the occurrence of acute rheumatism in the parents, brothers, or sisters may establish a strongly rheumatic disposition.

It further appears that a considerable number of instances of cardiac diseases associated with chorea, occurred in patients who themselves had suffered from slight arthritis, or whose near blood relations exhibited well-marked acute rheumatism.

The author believes that the constant occurrence in clinical experience of the association of articular rheumatism, chorea, cardiac disease, tonsillitis, erythema, and subcutaneous tendinous nodules, is not an accidental one, but that they are all to be regarded as different expressions of the same constitutional taint, and that we have been led into error in assuming the joint affection as the criterion of rheumatism, when it is really, as Roger long ago pointed out, but one manifestation of that disease.

The sequence of events is by no means uniform. Commonly we have first the joint affection, then the heart disease, and lastly the chorea. But it is not at all infrequent for the chorea or the heart trouble to precede the arthritis by months or even by years, so that unless these patients are followed up they may be believed to be non-rheumatic.

Of 106 cases of heart disease apart from chorea, there was a distinct history of rheumatic arthritis in 69 or 65 per cent.

In 28 of these 69 cases there was also a history of rheumatism in near blood relations, adding to the 69 cases 16 more in which there was a similar history of acute rheumatism in the near relations but none in the family, we have, 85 of 106 cases of heart disease with a clear history of acute rheumatism. If chorea and other rheumatic manifestations were added, the proportion would be even greater.

Of 89 successive cases of heart disease associated with chorea, in 51 acute articular rheumatism occurred in the patient, and in 17 of these in the father or mother also. In 19 more there was a clear history of rheumatism in the immediate family—*i. e.*, a rheumatic taint existed in 70 of 89 cases, or over 78 per cent. In 19 cases only was no rheumatic element discovered.

Of 84 cases of chorea, 62 furnished a history of rheumatism in the patient or near relatives, while in 22 it was absent.

Of the 62 rheumatic chorea, organic heart disease existed in 43.

Of the 22 non-rheumatic cases, 6 only had organic heart disease.

In order to ascertain the influence of heredity in the production of rheumatism in children, 492 cases admitted to the hospital in succession, medical and surgical included, were investigated: 173 had a family history of acute rheumatism, of these 38, or 20.2 per cent., developed unmistakable rheumatism. Of the remaining 319 only 15, or 4.6 per cent. gave evidence of it.

Of 195 cases of cardiac disease of all kinds, including congenital, which was carefully examined, a distinct rheumatic taint was traceable either in the patient or near relatives in 155, or 79.3 per cent.

Regarding the relation of scarlatina to cardiac disease, the author thinks it may develop either in the early stage of the disease from the scarlatinal poison or the rheumatic element associated with it, or in the later stage as a consequence of nephritis. There is also seen in scarlatina a peculiar tendency to the production of dilatation and hypertrophy without valvular disease. Pericarditis is also so often seen as a complication of empyema, especially if upon the left side.

The general conclusion is drawn from a study of these cases that in childhood recovery is far more complete, and compensation more perfect than in adult life. Some few may loose, as age advances, all physical signs of organic disease. If *slight* damage to the heart is more easily repaired, *serious* damage sets up the after changes of hypertrophy and dilatation more rapidly than in the adult, as the soft growing muscle is less resistant than the tissues later in life.

Hence the great importance in children of the early recognition and treatment of these cases before the heart walls have seriously suffered.

Vigilance in diagnosis, and a carefully regulated life during the growing period cannot too much be insisted upon by every one dealing with cardiac disease in children.

Francis: Diphtheritic Paralysis. (*London Practitioner*, July.)

A physician, on June 23d, had the patient cough in his face while swabbing out a diphtheritic throat. Two days later he had a sore throat and a patch on the tonsil; this spread quite rapidly for a time, but was finally controlled by treatment. On July 4th, paralysis of the throat first showed itself. On August 12th, the eyesight began to fail, and in September the legs and hands became affected, the

other paralysis improving meanwhile. There was anesthesia as well as paralysis in the extremities. Electricity, strychnia, and shower baths were used, and by December 1st he was well.

The poison seems to have been inhaled. There was no abrasion on the face at the time of its reception. Its halting progress through the body is a matter of interest.

Stein: *Enuresis or Incontinence of Urine.* (*N. Y. Med. Record*, June 27th.)

Incontinence of urine is a common ailment of childhood. It is often met with in the aged, and less frequently during middle age. At these various periods of life, however, it has a different signification as regards etiology. The causes of incontinence may be classified into mechanical, anatomical, neurotic (peripheral and central irritation), local (irritability of bladder, inflammation, etc.), traumatic (extreme dilatation or laceration of female urethra, cystotomy, etc.), and idiopathic. The mechanical causes may be divided into: 1. Those operating within the urethra and bladder; 2. those operating external to the bladder. Under the first heading are those causes which induce an imperfect closure of the vesical neck, as occurs when the median portion of an hypertrophied prostate renders the vesical orifice more or less patent, or the impaction of a calculus at the vesical neck gags the orifice and causes trickling by the side of the stone. One of the most frequent causes of the trouble is the existence of some peripheral irritation. In order to appreciate the rationale of this cause in the induction of incontinence, we have but to call to mind the fact already mentioned, that micturition is essentially a reflex phenomenon, and that observation and experimentation clearly demonstrate the influence of peripheral stimuli in effecting a perfect act of micturition. We can thus readily perceive how easily any irritation existing in parts presided over by the same nerve-centre, may produce the trouble in question. Thus phimosis, in retaining the secretions around the glans penis and preventing cleanliness, and the adhesions which frequently result between the preputial mucous membrane and the glans, is a most common cause of incontinence. In many boys a very moderate degree of phimosis will be sufficient to cause incontinence. There may be an excessive length of prepuce with but little contraction of orifice, or there may be but slight elongation with considerable contraction, insufficiency of meatus,

ascarides, hemorrhoids, fissure of anus. Among the numerous central nervous disturbances that occasion this trouble, epilepsy, hysteria, and chorea, are among the most common. In many cases of incontinence in children we can discover no pathogenetic factor whatever to account for the trouble, and in which we seek in vain for any peripheral or reflex cause. These cases belong to a class by themselves and have purely an anatomico-physiological basis for their causation.

It may be assumed that there is either an anatomical disproportion between the retentive and expulsive factors, or else there exists an inharmonious nervous action. In other words, the incontinence may depend upon the operation of a powerful detrusor against a feeble sphincter, a condition which is the normal relationship of these parts in infantile life, or else there may be a disturbed or unequal neurotic action, the detrusor being in a condition of exalted sensibility or excitability, while the sphincter is in a condition of deficient innervation. We may assume that the immediate cause of many cases of idiopathic incontinence is a neurosis depending upon some temporary molecular disturbance of that segment of the cord which presides over and co-ordinates the movements of the bladder. Not only anemic, badly nourished, and scrofulous children are the subjects of this infirmity, but many that are healthy and robust may present the most obstinate forms of the complaint. The trouble often terminates suddenly, or after a few relapses. Success in the treatment of incontinence will depend upon the recognition of its cause; some cases, however, baffle our best efforts at treatment, until a certain age is reached, when nature comes to the rescue and the evil terminates spontaneously. The methods of treatment may be classified into surgical, mechanical, and medical. Surgical treatment naturally includes all operations required for the removal of calculus, phymosis, adhesion of balano-preputial mucous membrane, enlargement of meatus, hemorrhoids, etc. The meatus and prepuce have been closed with collodion, and a variety of pads, elastic rings, clamps, and appliances have been devised for the purpose of mechanically preventing the escape of urine, but the philosophy on which they work is as feeble as the infirmity they are supposed to correct. The special remedies which have been recommended for this complaint are numerous, belladonna, chloral, ergot, nux vomica and strychnine, bromides, creosote, camphor, digitalis, cantharides, etc.

Descroizilles: Confluent Eruption of Urticaria, Accompanied with Gastric and Intestinal Troubles, and Following a Meal of Mussels (Shell-fish) in a Young Boy. (*Rev. Mens. des Mal. de l'Enf.*, June.)

The case occurred in the person of a boy fourteen years of age. It began with severe intestinal colic and pain in the precordial region, quickly followed by vomiting and a diarrheal movement. These symptoms continued with increased intensity during the next three or four hours, at the end of that time he was quite feverish, the intestinal pain having subsided somewhat after a draught of hot tea, and an intense general pruritus had appeared. Inquiry revealed the fact that mussels had been eaten just before the symptoms appeared, the attack coming on in a hot theatre. The eruption was quite extensive upon the thighs, the lumbar and iliac regions, the thorax and abdomen, in the form of slightly elevated papules, the edges of which were almost in contact the one with the other. They were of a whitish hue at the centre and reddish at the circumference. The skin was swollen and hot where the papules had not developed, and the cheeks and conjunctiva were injected. There were also pain in the head, white tongue, bad breath, a temperature of 38.5° C., and a radial pulse of 100. The abdomen was painful to the touch, and sonorous to percussion. The treatment consisted in applying starch powder to the surface, which allayed the itching, and after a night's rest, thirty grams of castor oil were administered. The result of this with a day's stay in the house was that the eruption quickly disappeared. The author continues with the suggestion that urticaria is not uncommon among children, especially among those who are of a nervous tendency, and with some it is a chronic condition, disappearing and reappearing under slight provocation. Among its causes may be mentioned emotional excitement, severe exercise, pressure of the surface, atmospheric changes, excesses of heat or cold, various foods and drugs, electricity, and bites of insects. Other attendant phenomena may be those of eczema, impetigo, phthiriasis, and prurigo. Shell-fish and certain kinds of sea fish are especially apt to give rise to the condition in question.

A. F. C.

SURGERY.

Hutchinson: On Certain Obscure Sprains of the Elbow Occurring in Young Children. (*Annals of Surgery*, Aug., 1885.)

Mr. Duncan McNab, some years ago, called the author's attention to a peculiar injury occurring in young children, caused apparently by their being dragged forcibly by the hand. The symptoms are pain and inability to supinate the hand, which is strongly pronated, the arm is semiflexed, and the deformity suddenly disappears upon the hand being steadily supinated by the surgeon, or frequently whilst he is examining the case. The treatment is to grasp and supinate the hand steadily, when the parts will resume their natural position. The author differs from this view in several particulars. First, he believes that the lesion in the great majority, if not all cases, consists in a slipping of the radius out of the grasp of the orbicular ligament, which rests in the angle between it and the capitellum. The accident is commonly produced by a dragging, or other force applied to the hand in a condition of supination. "*A priori*," then we should expect a downward displacement of the radius alone, for it need not be pointed out how little the ulna is concerned under such conditions. In those cases, in which the force has been great, it is probable that there is also a rupture of the thin part of the capsule, connecting the orbicular ligament with the neck of the radius. It will greatly simplify the matter if this one explanation be admitted. The various theories of authors differ widely from each other. If the body of an infant or young child be taken and forcible traction applied to one hand during supination (it must be remembered that the force is great in the living subject—since frequently the child is lifted up or swung around by the person producing the accident), a peculiar snap will be heard. If the forearm is then dissected, it will be found that the orbicular ligament has slipped up, and this with or without rupture of the sub-orbicular membrane (if such a term may be allowed) is the sole lesion produced. If the elbow is now flexed and the hand pronated, the ligament again slips down into its right place, and again a snapping sound is heard. The essential feature of these common pains in early life, is the upward displacement of the orbicular ligament. As

regards treatment, the elbow should be flexed, and then gently but fully pronated; if a click is audible, one may feel certain that the orbicular ligament has descended.

Atkin: Acute Suppurative Arthritis in Infants. (*Medical Press*, June 24,)

A female child, seven weeks old, was brought with the following history: First child, easy labor, no family history of hereditary disease. The father gave no evidence of syphilis. About four days previously the mother had noticed a deformity about the right knee, and the morning she was seen had noticed an affection of the left elbow in addition.

Both joints were swelled, fluctuating, but very little evidence of tenderness or pain. Except a little scaling of the feet there was nothing to suggest syphilis in the child. The child died the same evening.

Pus was found, at the autopsy, in both joints, of a thick slimy consistency, but no blood. The semilunar cartilages of the knee were not perforated but had a sodden appearance. The synovial membrane was only faintly injected. The epiphyseal lines were found quite normal, as were also the periosteum and extra-articular tissues. No secondary deposits could be found, though carefully sought, and no primary source of suppuration, such as otorrhea, vaginitis, or suppuration at the umbilicus. It seemed to be an acute primary arthritis without apparent cause. The writer has been unable to find any parallel cases in the literature of the subject.

Parker: Treatment of Chronic Synovitis of the Knee by Operation; Opening the Joint and Cutting out the Diseased Membrane. (*Medical Times*, June 27.)

Two cases were operated upon. The first was a child of six, disease of two months standing. Extensive suppuration. A transverse incision was made across the limb just above the patella, opening the joint. The synovial membrane was thickened and pulpy. It was carefully removed by scissors and spoon curette. The cartilages were eroded but not deeply. These were all likewise thoroughly scraped. The patella was sewed to the quadriceps tendon by cat-gut sutures. The flaps sloughed, and the case did so badly that amputation of the thigh was done to save the child's life. All this was in spite of antiseptics, which from the nature of the case could not be carried out completely. The second case was more successful. The child was eleven years old, and the disease

was of six or seven years duration. The joint was opened by the semi-circular incision as if for excision. The synovial membrane was pulpy and in places half an inch thick. The cartilages and extremities of the bones were apparently free from disease. The synovial membrane was removed as in the preceding case. The crucial ligaments were buried in granulations which were scraped away, the ligaments being preserved. This case did quite well. There was manifested a strong tendency of the femur to override the tibia, and of the limb to assume a flexed position. In a month the wounds were firmly closed and there was slight reaction. The child was seen in good health six months later, but unfortunately the condition of the joint is not described, exactly what one wishes most to learn.

The author proposes the operation described as a substitute for an excision of the joint in cases of long standing disease which show but little tendency to get well. The ultimate results of cases of excision in children are not such as to lead him to advise the operation.

Lediord: Dislocation of the Hip in a Child of Five Years; Easy Reduction Three Months Afterwards. (*Med. Times*, Sept. 5.)

The injury was received by a fall from a door-step, the case was taken to a "bone-setter" who did not recognize the condition. All the signs of dorsal dislocation were present. The bone slipped into place while slightly manipulating the limb during the administration of the anesthetic. The easy reduction was explained by the shallowness of the acetabulum in children, this necessitates, also, more prolonged after-treatment to prevent recurrence of the dislocation.

Curtis: Congenital Ankylosis of the Radio-Ulnar Articulations. (*N. Y. Med. Jour.*, Sept. 19.)

Congenital radio-ulnar ankylosis is not a very common deformity, even if we include those cases in which there is also an ankylosis of the elbow or wrist-joint proper. The following case is reported: In a boy three years old, the arms, forearms, and hands of both sides are of normal strength and of normal outward appearance, the forearms being in a condition of semi-pronation. The hands and wrists are normal in form and motion. In both elbow-joints flexion and extension are complete, and the bony parts are in their normal relations. But both forearms are firmly fixed in a position midway between

pronation and supination. Examination under ether gave, in addition, only the negative information that the ankylosis remained as complete as before, and that no malformation could be detected in the shape of the bones. It was impossible to discover any abnormal deposit of bone in the interosseous ligament or elsewhere, nor could it be decided whether the obstruction to motion was in the superior or in the inferior articulation, or in both. The bilateral occurrence of the deformity, and the absence of a history and of any marks of injury or of disease, point to a congenital malformation. The rigidity of the ankylosis indicates a synostosis of the radius and ulna, and, although it is impossible to say at what point this synostosis has taken place, cases already on record make it probable that it is situated at the superior end of the bones. As to treatment, it does not seem wise to attempt any. The forearms are ankylosed in the most favorable position, so that the only object of treatment would be to gain the rotary motion of the forearm.

Arnold: Extraordinary Distention of the Bladder of an Infant without Rupture. (*Indian Med. Gazette*, May.)

A native child, six months old, was brought with a history of having passed no urine for three days. The stoppage was sudden. The bowels moved frequently though scantily. An elastic catheter, No. 1, was introduced, and in eight hours thirty-six ounces of urine had drained away by measurement. Catheterization had to be repeated for two or three days, but no permanent ill results followed this great distention. It was attributed to paralysis of the bladder, and nux vomica seemed to give relief.

Pughe: Sarcoma of the Scalp in an Infant. (*Liverpool Medico-Chirurg. Journal*, July.)

A female child, ten months of age, presented a large flat tumor of the forehead. It was about two and a half inches in either diameter, a little to the left of the median line, implicating the eye brow and upper lid. It was growing rapidly, and had been noticed for two months. The family history was good. It was removed, and found to be a round-celled sarcoma. Three weeks later, another similar growth was seen on the top of the head, and a little later one over the right temple. They were not operated on. The final result of the case is not given.

Krause: Acute Purulent Arthritis in Little Children, and the Micrococcus which is Characteristic of this Disease. (*Rev. Mens. des. Mal. de l'Enf.*, [from *Berl. Klin. Wochen.*, Oct. 27, 1884], June. 1885.)

The course of the disease is described as follows: There is a sudden onset of fever and of sharp pains in the large articulations, coming to a child who is apparently in perfect health. The symptoms are not attributable to traumatism, nor to any predisposing cause. The surrounding soft parts are attacked with an intense phlegmonous inflammation. When the opening of the swelling takes place, whether from an incision or spontaneously, a large quantity of thick pus and synovial fluid will be evacuated, this circumstance being emphasized by Volkmann in fifty cases which came under his observation. When the wound is carefully examined, it will be found that the synovial membrane is swollen and decidedly hyperemic, the cartilages being usually intact. The disease is quickly terminated, and leaves neither ankylosis nor fistula. In rare cases, especially those in which incision has been delayed, there may be a loss of cartilaginous substance with subluxation. The treatment which is advocated by Volkmann and Krause, consists in opening the joint, washing it out with carbolic acid solution, drainage, and antiseptic dressing. The micrococcus which the author found, resembles the pyogenic streptococcus of Rosenbach, and the diphtheritic micrococcus of Löffler. The latter, however, will not produce articular abscesses when animals are inoculated with them.

A. F. C.

Boeckel: New Cause of Prolapsus of the Rectum. (*Rev. Mens. des Mal. de l'Enf.*, May.)

Such a case was reported by Boeckel in the *Revue de Chirurgie* for January, 1885, and made the basis of some interesting remarks. The observation is made that the treatment of this accident in children is generally considered very difficult, and the cause is usually believed to be a too great laxity of the rectal sphincter. Since the year 1881 the author has contended for the importance which congenital narrowings of the upper end of the rectum exercise on the development of the rectal prolapsus. A congenital stenosis does not necessitate, inevitably, an immediate prolapse, such a condition may not appear until the child is six months or a year old.

The reason is that in early life the liquid stools of the child pass through the stenosed portion easily, while later on, when they have become solid, they cannot do so.

In the cases which have been observed, the stenosis has always been situated at the junction of the rectum and the sigmoid flexure. The prolapsed portion has a conical form—an ox-horn shape—while in cases in which the prolapse is due to relaxation of the sphincter, it has a mushroom shape. An anal pessary has been devised by Boeckel for the cure of this trouble which consists of a stem seven centimetres long and eighteen millimetres in thickness, with an olivary extremity and a canal throughout its entire length. It joins a circular disc five centimetres in diameter, which is applied at the anus, the stem having been projected into the rectum. Four straps are attached to the disc, the two anterior ones being supplied with buckles, and anterior and posterior ones meet at the shoulders, thus fixing the apparatus. The instrument may be left in place without removal for two days, after which a bath will be required. After wearing it five or six days, a cure is usually produced. The theory of the operation of the instrument is that the contractions of the intestine constantly tend to push the stenosed portion downward upon the olivary extremity of the instrument and thus dilatation is effected. A. F. C.

Bibliography.

MILK ANALYSIS AND INFANT FEEDING. A practical treatise on the examination of human and cow's milk, cream, condensed milk, etc., and directions as to the diet of infants. By Arthur V. Meigs, M.D., Physician to the Pennsylvania Hospital and to the Children's Hospital; Fellow of the College of Physicians of Philadelphia, etc. Philadelphia: P. Blakiston, Son & Co., No. 1012 Walnut Street, 1885.

A perusal of this little book will repay any one for his trouble. Although much has been written on infant diet the subject is by no means exhausted. The large mortality among bottle-fed infants is evidence enough that a proper substitute for mothers' milk has not yet been obtained notwithstanding the numerous attempts in that

direction. Every little while a "perfect food" is presented to the profession, which after a brief existence is relegated to the list of past failures. This is no doubt due, in a great measure to our imperfect knowledge of the composition of milk. It is encouraging, however, to know that each succeeding investigator has the advantage of the experience of others who have trod the ground before, and it is not at all improbable that ere long the desired goal will be reached. The author claims to have arrived nearer to a solution of the problem than any of the published authorities, basing his statement on a number of carefully conducted analyses, some steps of which are original, by which he has determined the actual amount of casein contained in human milk; this he has found to be one per cent. The analysis of Vernois and Becquerel is the one accepted as a standard by most writers on the subject, which places the quantity at nearly four per cent.

The principal difficulty in milk analysis is the separation of the casein from the sugar, this we must acknowledge the writer has overcome to a greater degree than has hitherto been done. In a table giving the results of analyses by a number of investigators with reference to the respective amounts of casein and sugar attention is directed to the fact that all agree as to their quantities when taken collectively, but that where the amount of casein is large the quantity of sugar is small, and *vice versa*. These differences could readily be accounted for on the ground of errors in the methods employed by the different analysts.

The author's formula of infant food, which theoretically and clinically, he thinks, approaches more nearly to human milk than anything previously offered, is two tablespoonfuls of ordinary cream, one of good milk, not Jersey milk, two of lime-water, and three of sugar-water, made by dissolving seventeen and three-quarter drachms of pure milk-sugar in a pint of water. The ingredients are to be mixed together and warmed. As the infant grows older the quantity should be increased but the proportions are to remain the same until the child is six to nine months old. The writer in conclusion declares that "no food has been found, or ever will be found, so good as the nourishment which the healthy mother is able to give her child, and the food recommended will sometimes fail, as all things fail."

J. D.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

MARCH, 1886.

[No. 3

Original Communications.

CARDIAC DISEASE IN INFANCY AND CHILDHOOD.¹

BY T. M. ROTCH, M.D.

Instructor in Diseases of Children, Harvard Medical School.

GENTLEMEN.—Cardiac disease in infancy and childhood, while somewhat more rare than among adults, covers a much wider ground for investigation, arises from many more causes, admits of a greater variety of classification, and has a much more decided tendency to recovery than later in life.

It is, as an acquired disease, comparatively rare, because the fruitful source of post-natal cardiac disease. Acute articular rheumatism is rare in early life, though this statement must be modified in regard to rheumatism as a whole. Slight attacks of muscular rheumatism, in my experience, apparently causing cardiac disease much more frequently in children than in adults.

Arising from a greater variety of causes, these causes present, individually, almost unlimited fields for investi-

¹A lecture delivered at the Harvard Medical School, Feb. 5th, 1886.

gation, and thus combined cover more ground than in the adult.

The different systemic poisons are so much more apt to affect the heart in children than in adults that they almost constitute a separate disease of childhood, thus necessitating new classifications; and the tendency to recovery not only from the especial illness, but, so far as we can discover clinically, recovery in the sense of being left with a practically sound heart, is so much greater than at a more advanced age, that we are encouraged from the onset of the disease to unremittingly push on our treatment even in the face of the most adverse symptoms and repeated failures. I have had children with cardiac disease presented for treatment at my student's clinic one year, with their symptoms so pronounced that they had to be carried,—were emaciated, cyanotic, and with the physical signs of enlarged heart and souffles, and these same children have returned and been shown to the next class of students in the following year, walking upstairs without dyspnea, looking well nourished, of a good color, with much less enlargement of the area of cardiac dullness, and the cardiac souffles scarcely perceptible, in fact reported to be in good health. As an illustration of this class of cases, some of you will perhaps remember the little girl who not long since was brought to my clinic by her mother simply to be shown as a child now well, whose life at one time was despaired of by her parents. (Case 1.) When first seen she was about five years old. She had never had any of the acute diseases, such as scarlet fever, diphtheria, pertussis, articular rheumatism, or in fact any trouble excepting rheumatic pains during the past two years, denominated by her mother as "growing pains." For the past six months she had lost in appetite and weight, got out of breath very easily, suffered from palpitation, and in the beginning of her sickness was confined to her bed for a week or ten days with a high fever and pain referred to her left side. On examination she was found to be somewhat cyanotic. The area of visible cardiac pulsation was much increased. The apex of the

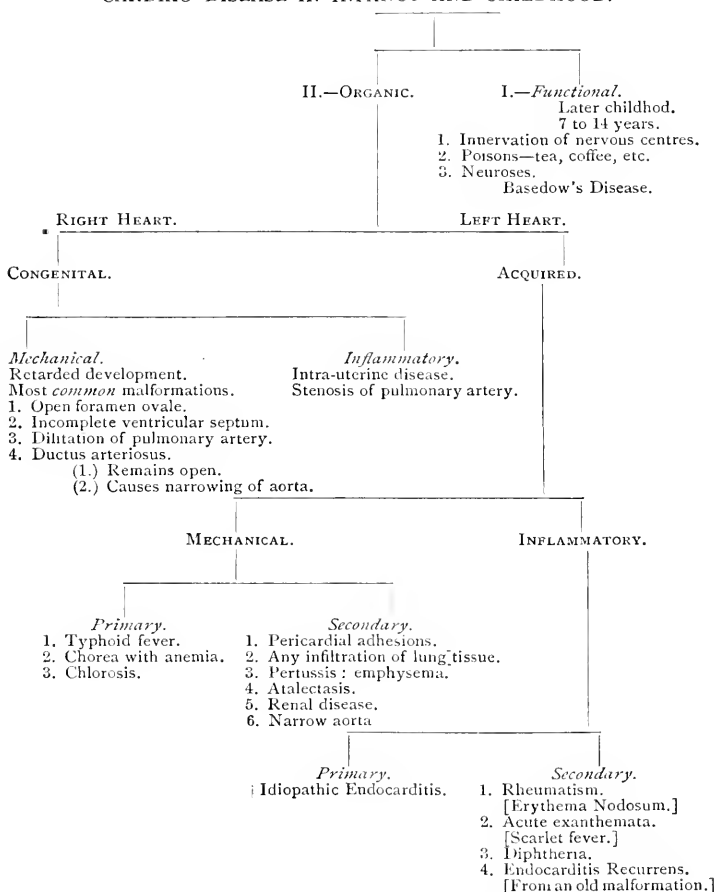
heart was in the sixth interspace, three centimetres to the left of the mammary line. The area of cardiac dulness extended to the right para-sternal line, from the third to the fifth cartilage, and one centimetre to the left of the mammary line on a level with the left mamma; the vertical area of dulness to the left of the sternum being from the second to the sixth interspace. There was a loud mitral systolic murmur. The lungs were normal. The chief points of treatment in this case were the careful administration of nourishing food and rest. She was always carried up and down stairs for almost a year. She grew worse for a time; her temper was greatly changed, and she for some time, when the cyanosis and orthopnea were most marked, had a cough, and once or twice hemoptysis.

By the following winter, however, the general symptoms were much improved, and in another year the dyspnea, cyanosis, palpitation, and pain had passed away. The apex of the heart was in the fifth interspace in the mammary line, and the area of dulness very little greater than normal. The murmur had almost disappeared.

From these preliminary remarks, you will see that much of interest can be said on this subject, and I shall endeavor to present to you a miniature picture of cardiac disease, avoiding detail, and giving you concisely the points wherein the child's disease differs from that of the adults, for in this way I believe that you will best be fitted, when you enter upon your practice and meet with the various classes of cardiac disease, to pick out understandingly and analyze correctly the more difficult individual cases, and bear in mind that the key-note to the diagnosis of the obscure infantile cases lies not so much in the refined distinction of the especial murmur, absence of murmur, or area of dulness, but in the anatomical and physiological conditions which underlying the physical signs, relagate to its proper place of classification the especial case, and rapidly clears the way for prognosis and treatment. Not that I would underrate

the value of skilled auscultation and percussion in these cases, but that in infancy the physical signs are not so clearly defined as in later life, and being more difficult to interpret we need and must be prepared to make use of knowledge founded on a broader basis.

CARDIAC DISEASE IN INFANCY AND CHILDHOOD.



Cyanosis.—(1.) May be a general symptom of congenital and acquired disease.
(2.) May be an especial symptom of congenital disease and then usual to find some change in the *pulmonary artery*.

Valvular Lesions, when not otherwise accounted for, may be the result of *hematomata* of the valves occurring just before, or just after birth.

I shall not, then, dwell on the points of physical diagnosis, murmurs, thrills, dulness, etc., which, in common

with adults, make up a complete picture of the disease, but I shall enter at once upon the classification which will most distinctly impress upon your minds the salient points needed for clear and definite diagnosis, from which I hope you may deduce a practical and common-sense treatment, as the mathematician, with a knowledge of certain primary truths, deduces the various problems which are presented to him.

The cardiac diseases of infancy and childhood may be diagrammatically divided into organic and functional, and the organic into I. Congenital, II. Acquired; I., as a rule, affecting the right heart, and II. the left. Dividing again we have, as causes, mechanical and inflammatory, and again primary and secondary.

The field at once widens to such an extent, that in presenting this diagram to your notice to aid you in grasping the subject, you must understand that it embraces not all possible affections of the heart, but roughly classifies the principal ones, giving you a framework on which you can build in your future and more extended study.

Speaking in general, without reference to any particular division, remember that in infancy and early childhood, in comparison with older children and adults, cardiac disease is essentially atrophic in its character; you will recall (Case II.) the baby three months old presented for treatment at the City Hospital with congenital cardiac disease, where the most striking feature in the case was extreme wasting; also (Case III.) the boy who was treated for enlargement of the left heart and a mitral regurgitant murmur, where again the picture was of a wasting disease, and where, as compensation took place, and the general symptoms improved, the indication of this improvement was marked by a progressive gain in weight and strength.

Remember also that enlarged heart, dependent on the adhesions of a preceding pericarditis, is a more common result than in adults, and that compensation is more easily set up; also that fatty degeneration of the right ventricle, following pertussis and chronic pneumonia,

may give rise to syncope; also that cardiac symptoms depending on organic lesions may arise, and yet no physical signs of a lesion be detected during life; the reverse of this last proposition brings us to the first division of our table, namely: Functional, where cardiac symptoms from reflex causes and not from organic cardiac lesions, may arise and render your diagnosis more difficult, but when recognized as possible, simplify the case very materially.

Functional trouble of the heart usually does not occur until the later years of childhood, when the children have begun to go to school, and where, from overtaxed brains, combined with imperfect ventilation of the rooms, where they spend so many hours, they become anemic, the vitality of their nervous centres is lowered and various cardiac symptoms develop. A marked example of this class of cases was (Case IV.) the boy eight years of age, who came to the Boston Dispensary Clinic, in January, and was shown to the students at that time; his attacks of fainting, palpitation, dyspnea, etc., were evidently produced by complete innervation of the nervous centres resulting from undue confinement in the house, both during and after school hours, and the attempts which were made to make him understand subjects far beyond his years; you will recollect that after being taken from school and made to play all day in the open air, he appeared at my last lecture looking perfectly well, and with no symptoms of disease remaining. In this community among the poorer classes, a great deal of tea is given to children at as early an age as seven or eight years, and this poison often produces marked cardiac symptoms, so that you will find in the record books a frequent diagnosis of "T-heart;" now these cases are one form of functional cardiac disease, and a striking example of this class was seen by you at a previous lecture (Case V.); a girl, nine years old, presented for treatment, with symptoms of dyspnea on exertion, fainting attacks, excessive palpitation, pain in the cardiac region, sounds of heart pronounced, no murmurs (we often find hemic

murmurs in these cases), or enlargement of cardiac area of dulness, and apex in position. No other cause, could, as you remember, be discovered to explain these symptoms, excepting that the child was in the habit of imbibing large quantities of strong tea every day. The tea was omitted and the symptoms disappeared. Various neuroses may cause cardiac symptoms, and of these Basedow's disease may be mentioned in passing, but is too rare to be dwelt on in this lecture. The subjective symptoms are apt to be more marked in these functional cases than where they depend on organic lesions.

We now come to our second division, organic disease, with its subdivisions of congenital and acquired disease. Speaking broadly, where the right side of the heart is effected, it is usually found that the trouble is of congenital origin, while if it is the left side of the heart, it is probably acquired, though, of course, there are many exceptions to this rule. To thoroughly understand the significance of the organic lesions of the heart, we must be cognizant of its development in intra- and extra-uterine life, and must bear in mind the main anatomical and physiological differences between the child's heart and the adult's. We naturally begin with those diseases which exist at birth and are called congenital, and to fully appreciate them you will need the anatomical and physiological knowledge of the fetal circulation, which I have already taught you. Especial points of difference between the fetus and the infant are the opening between the auricles (the foramen ovale), the connection between the pulmonary artery and the aorta (the ductus arteriosus), and the physiological or rather intra-uterine narrowing of the aorta, between the left subclavian artery and the entrance of the ductus arteriosus,—the isthmus aortæ. At an earlier stage of development, also, the incomplete closure of the intra-ventricular septum. Assuming, then, that you have this knowledge, we will first speak of congenital disease. Now, congenital disease may be a simple lack of development, and this lack of development, constituting the disease, acts as a primary cause (mechanical)

for succeeding symptoms (that is, a stage of development which might be normal in the fetus, by not progressing would become abnormal in the infant, and in fact a malformation); or it may be that some disease, usually inflammatory in its nature, has attacked the valves or endocardium in utero, and we have secondary symptoms just as we do in the acquired cardiac disease of extra-uterine life, excepting so far as the disease has retarded the development which would make additional complications. The developmental class of cases is the most common, and it would be interesting if we had time to trace back the steps of fetal development, and see at what age and stage of development the lesions found at birth took place, but it would not be of any especial use to us clinically, for the malformations themselves may be so combined and present such similar symptoms, that I shall not attempt to burden your memories with minute points of differential diagnosis as to the especial malformation which exists. We know, however, that although a great variety of changes between the usual relation of the vessels and cavities of the heart may occur, yet that the malformations most commonly met with, and causing the symptoms in the great majority of cases of congenital cardiac disease are an open foramen ovale,—an incomplete ventricular septum,—some malformation of the pulmonary artery and a pervious ductus arteriosus; these lesions being single or, as is more commonly the case, two or more being found combined.

The open foramen ovale alone seldom causes any decided cardiac symptoms, either physical or rational, and, in fact, certain others of these complications may exist and yet compensation take place to such an extent that, with the exception of at times a little dyspnea on over exertion, no cardiac symptoms may show themselves for years, when for some reason, compensation being interfered with, symptoms of mechanical obstruction arise or an endocarditis apparently be caused, resulting from an old malformation—the so-called endocarditis recurrens, mentioned in the table under the secondary form of the ac-

quired inflammatory. Usually, however, we have marked symptoms. The infant soon becomes atrophic. The distal phalanges of the fingers become club-shaped. There are attacks of suffocation. The attendants notice exaggerated cardiac pulsation, and blueness of the lips and finger-nails on crying. Diffuse cardiac murmurs are heard, often over the whole chest, and in some cases a decided increase in the area of cardiac dulness. Now, where there is decided cyanosis, we are greatly aided in our diagnosis of congenital cardiac disease, but at times this symptom does not occur, although a serious malformation may exist. Remember that cyanosis arises from incomplete oxygenation of the blood, not merely from the mixture of the venous and arterial currents, but also from any cause which by obstruction may cause a venous stasis in the centres of respiration. Where cyanosis is present to any great extent, however, there is usually some malformation of the pulmonary artery or its valves. You will thus see how difficult it would be to make an exact diagnosis of the especial lesion or lesions in any one case, although, as a rule, it is not difficult to say that cardiac disease is present, and that it is of high or low grade as determined by the gravity of the general symptoms. You must remember that it is a question almost purely of mechanics in these cases, and that thus your anatomical knowledge will often be of great aid in explaining the symptoms, where your stethoscope would merely tell you that cardiac disease existed, either congenital or acquired.

Under the mechanical division in the table, you will observe that I have spoken of two conditions of the ductus arteriosus as causing symptoms of congenital disease. Now, where the duct remains open, it is often, as is the case with the open foramen ovale, a safety valve to obviate the bad effects which would otherwise arise from some of the other malformations, as where the narrowing of the aorta, above spoken of, has gone on to obliteration, and thus necessitating some other channel for the blood to enter the descending aorta.

But at times the process of obliterating endarteritis, by

which closure of the lumen of the ductus arteriosus is accomplished, not only extends to the aorta causing the stenosis just spoken of, but the duct itself on closing and retracting pulls like a cord on the aorta, and thus again tends to narrow that vessel and cause certain cardiac symptoms, resulting from increased arterial tension, to be referred to later. Of course, during fetal life, complete stenosis of the isthmus aortæ does not produce much disturbance, the ductus arteriosus carrying the blood to the descending aorta, and the left ventricle becoming somewhat atrophied from lessened work. But at birth, unless the ductus arteriosus remains pervious, serious symptoms arise, and if life is prolonged hypertrophy of the left ventricle takes place, and the arterial blood has to be conveyed to the descending aorta by means of a collateral circulation being set up between the branches of the subclavian arteries and branches of the thoracic and abdominal aorta. You remember the baby with congenital cardiac disease, already spoken of (Case II.), where simply placing it on its right side caused immediate relief to its serious attacks of dyspnea and suffocation, this procedure evidently opening a safety valve by which some overtaxed portion of the circulatory mechanism could be temporarily freed from its burden. Where there has been an intra-uterine endocarditis, it usually shows itself in a stenosis of the pulmonary artery, or its valves, as represented in the table.

Where the lesions are low in grade, compensation is so easily accomplished in children that they may live for years, and in my practice I have followed cases where the symptoms were at times very serious, and yet these very children are to-day seen walking about the street in apparent comfort; but where the lesions are multiple and pronounced, they do not live for many years, and the prognosis is not so favorable as in acquired cardiac disease.

Before speaking of the acquired form of the disease, I will mention that at times children show signs of valvular lesions, where it is impossible to ascribe a cause for the disease, the symptoms apparently being merely obstruc-

tive; this class of cases is on the boundary line between the congenital and the acquired, and there is some reason to suppose originate from those hematomata of the valves, especially the mitral, which appear just before or just after birth, and, in their process of disintegration, may possibly cause a contraction of the valvular tissues.

We will now consider the acquired form, a division which represents those cases of cardiac disease which originate after birth, and we must first review the especial anatomical, physiological, and developmental points of difference between the child and adult, as we have already done in the congenital division, in order that you may appreciate the distinctions which I am about to make.

In infants and young children we frequently find the apex of the heart an interspace higher than in the older child and adult; that is in the fourth interspace, and this is, at times, of importance in determining whether the heart is enlarged in an infant.

Next as to percussion. In the normal processes of development the heart is relatively larger between the third and eighth year than it is in adult life, and at this age certain investigations seem to point towards a physiological hypertrophy of the left ventricle, caused possibly by a continuation of the aortic narrowing in the neighborhood of the ductus arteriosus, or rather between the ductus arteriosus and the left subclavian artery. At this age, also, the heart being in an active stage of development is more easily influenced by disease or undue mechanical pressure. We frequently find at this age, also, a relative dulness over the middle and lower parts of the sternum, much more pronounced than in the older child and the adult, and this physiological relative sternal dulness must be remembered, for you will at once see that sternal dulness at this age is not so important, as a sign of disease, as when it is found later in life, and I have often demonstrated this by percussing numbers of healthy children.

By referring to the table you will see that acquired disease may simply be mechanical, or it may be inflammatory followed by mechanical symptoms. We will first

speak of the mechanical, which may be either primary or secondary.

It is not only in the rheumatic affections of childhood that the heart should be carefully and frequently examined, but in the acute infectious diseases, and in any innervating disease profoundly affecting the nervous centres, dilatation may come on and should be vigilantly watched for. Examples in this class are afforded in certain cases of typhoid fever and in chorea accompanied by pronounced anemia, where although the murmurs are undoubtedly often hemic, yet, when combined with a decidedly increased area of dulness and feeble impulse, we cannot but think of dilatation with mechanically insufficient valves from stretching, especially when we have been unable to detect any symptoms of a preceding endocarditis. In girls approaching the age of puberty, chlorosis has been found to affect the heart in this way also. We now come to the numerous secondary causes of organic cardiac disturbances which occur mechanically in the acquired form.

The effect of pericardial adhesions in disabling the heart has already been spoken of:—Any obstruction producing a great increase of blood tension may result in cardiac enlargement, and under this heading would come infiltration of the pulmonary tissues, also pertussis with its accompanying emphysema, and atelectasis. Renal disease, and especially that form which follows scarlet fever, is a well known cause of cardiac disease in children, but this will better be spoken of under the secondary division of inflammatory disease, when I will also present to your notice a boy exemplifying this class of cardiac disease, and finally any cause which interferes with the normal lumen of the aorta may, by increasing the arterial tension, render necessary a compensating cardiac hypertrophy.

Finally, we have the inflammatory form of the acquired disease with its primary and secondary divisions.

The primary division is represented by idiopathic endocarditis, and is not of such very rare occurrence; the left

ventricle is usually the part affected, and the development of the endocarditis is attended by high fever. The symptoms differ according as the inflammatory condition has begun in the valves or in the cardiac walls. In the former case the signs of dilatation accompany those of valvular disturbance, while in the latter the symptoms of dilatation come first, and are followed later by the mechanical results of valvular insufficiency. Death may take place at the height of the attack, or after days and weeks there may be a retrogression of the morbid process. If it was the walls of the heart which were affected, the heart may regain its normal size and position, and the accompanying valvular symptoms may disappear. If the valves alone or with the walls were affected, recovery can still take place. If the valvular deficiency remains, still, in spite of the acute dilatation having taken place, secondary dilatation and hypertrophy may arise.

In the secondary division we have endocarditis depending on first, rheumatism—here it is interesting to note that the endocarditis may precede by some days the rheumatic pains, and yet it is probable that it is the rheumatic poison which is causing the cardiac trouble.

In close relation with rheumatism as a cause of endocarditis, is the complication of erythema nodosum. Second, the acute exanthemata, and of these I shall especially mention scarlet fever. Now in scarlet fever, during its acute stage, we may have the poison set up an endocarditis, and cardiac trouble is, in this case, secondary to the scarlet fever (there is very apt to be an inflammatory affection of the joints in these cases), but the greater proportion of the post-scarlatinal cardiac cases follow and are dependent upon renal disease, so that they are really secondary to the renal disease and tertiary to the scarlet fever. The pathological process in these cases is decided hypertrophy combined with dilatation, in some cases both sides of the heart being equally affected, but usually only the left side; in some cases there is a partial fatty degeneration of the muscular fibres, but usually the endocardium, pericardium, and

bloodvessels are normal. The hypertrophy follows the nephritis very quickly, sometimes in a week, especially if the age of the child (which is usually the case) is within the period of physiological hypertrophy of the left ventricle. The boy whom I will now show to you is a fair example of this class of cases (Case VI). He is eleven years old, and was presented for treatment at the Children's Hospital, December 1, 1885, with the following history: he was well until he was four years old, when he had diphtheria; between his fourth and ninth years he had pertussis and varicella; he was otherwise well, excepting that for some years he had had palpitation and dyspnea on exertion, until he was nine years old when he had an attack of scarlet fever, followed in the third week by edema of the face and legs; these symptoms, however, passed off in a few weeks, but he has since never looked or felt well, has had frequent frontal headache, and at times nausea, not especially connected with the headache; the palpitation and dyspnea have increased since he had scarlet fever; he now looks pale and somewhat cyanotic, his appetite is poor, bowels regular, has lost considerably in weight; no other symptoms excepting that he feels weak. He goes to school. On physical examination the apex of the heart was found to be two centimetres outside of the mammary line and slightly lower than normal; physiological sternal dulness rather more marked than is usual at eleven years; the cardiac dulness extended two centimetres to the left of the mammary line, and corresponded to the apex beat; impulse of heart weak; second pulmonic sound accentuated; aortic sounds normal; a soft systolic souffle, very faint, heard at apex, not heard in back. Urine, specific gravity 1009; reaction acid; no albumen; nothing significant found under microscope; color pale. His chief complaint was of headache.

He was not allowed to go to school; was told to be out in the open air as much as possible, but not to run and not to go up stairs any more than possible, and he was

directed to take a teaspoonful of the following prescription four times in the twenty-four hours:

R_y—Tinct. digitalis, 2.5 grams;
Aqua. distil., ad. 100 grams.—M.

In two days his headache was much better, and on December 10th he was told to take a teaspoonful of the following prescription after his meals, and continue his digitalis:

R_y—Ferri et potas. tart., 5 grams;
Glycerin., 20 grams;
Aq. distil., ad., 100 grams.—M.

His general symptoms then began to improve; his headaches disappeared; he gained in weight and appetite and by the middle of January, 1886, he looked a good color and felt strong. The digitalis and iron were continued, and to-day you see him in apparently good health. He has no palpitation or dyspnea. On physical examination you will find that the apex of the heart is in position, no murmur can be detected, and the area of cardiac dulness is normal, excepting, perhaps, a little evidence of a slight sternal dulness, probably physiological. Now, if we analyze this case by means of our table, and assuming, as I think we may, that the boy had an attack of post-scarlatinal nephritis, we find that he from his previous sicknesses was predisposed to cardiac disease. Under the acquired, inflammatory, secondary division, we find diphtheria as a cause. Again, under acquired, mechanical, secondary, we find pertussis, and in this division, also, nephritis. Now the boy was during his previous sicknesses at an age when his heart, physiologically, was in a condition favorable for being affected by disease, and the history of palpitation and dyspnea pointed towards a possible circulatory disturbance. Then, however, he had scarlet fever and a nephritis following, and after the nephritis pronounced cardiac symptoms. Now the cardiac symptoms were evidently tertiary to the scarlet fever, and came under the mechanical division rather than the inflammatory, and the complete physical recovery

would correspond more to the history of a mechanical cause, especially as that cause—the nephritis—has also disappeared.

The last form of endocarditis which I shall speak of, and to which I have already referred, will be found also under the secondary inflammatory, and represents those cases of endocarditis which apparently are produced by some old lesion,—usually in children a congenital malformation—which has previously been somewhat masked. This form corresponds to the endocarditis recurrens of later life. As I stated before that I should not refer especially to the interpretation of the physical signs as they are, with the exceptions that I have mentioned the same as in the adult, so in regard to treatment we can treat the acute attacks in a child as we do in the adult. Later in the disease, I adopt the following measures, always bearing in mind that the younger the child the more likely we are to have to contend with an atrophic condition.

Encourage sleep (the heart beats of a young child during sleep is often reduced twenty beats in a minute, and thus sleep gives a better opportunity for compensation); comparative rest, that is exercise of a very mild type, never active; fresh air; good food; promote the surface circulation with baths and gentle massage; give digitalis and iron (children tolerate both of these drugs remarkably well).

In this way nature is best assisted in its attempts to accomplish that requisite of recovery—*compensation*.

INFANTILE SYPHILIS—THE RELATION BETWEEN CONDITIONS OF THE OFFSPRING AND PARENTAL ANTECEDENTS.

BY DR. ROBERT J. LEE, F.R.C.P., LONDON.

Supposing that we have before us an infant showing symptoms of syphilis, one or many, we may ask ourselves

the question, "What is the relation between the condition of this child, and the history of its parents," or supposing the converse question is put to us; given the history of the father, and mother, and all the details of how and when one or both were infected, can we predict what will be the result to the offspring? If every child presented the same symptoms and conditions, there would probably be little difficulty in answering the first question, just as there is not much in a case of small-pox or measles, in forming an accurate opinion of when infection occurred, and what have been the symptoms since then up to present date. With syphilis it is different. Time plays an important part in the evolution of syphilis in the offspring; that is to say, the time which has elapsed since the infection of the parent or parents. Treatment also plays a part, that is to say, whether certain agents have been used to produce an effect on the parent. Constitutional conditions in the parents also seem to have an influence in determining whether any and what kind of symptoms will be seen in the offspring. It is clear, I think, that the two questions are so intimately related that if we can answer the one accurately, we can also answer the other—the converse of it.

If we consider this problem thoughtfully, we shall come to the conclusion that we must solve it by working back from the child to the parents, and that it is to be solved in no other way. We may study the disease in the adult as carefully and exactly as possible, but we could not predict anything from this of what will happen to the product of conception. We may form a conjecture it is true, and if we do so we shall be guided by some theory of the nature of syphilis, and such theory will be probably based on analogy.

By comparing syphilis with other infecting diseases, and taking account of the way in which it differs, we might arrive at certain conclusions of some accuracy. We should reason somewhat thus. If a mother contracts scarlet fever or small-pox, or some similar disease during pregnancy, the fetus in utero will also contract it, and

supposing gestation continues, we can predict that the infant will be born with the same immunity to another attack as if it had suffered after its birth. We are reasoning from experience of a particular kind, and seeing that syphilis resembles in many respects diseases of a certain class, it would be reasonable to suppose that the fetus would suffer, if the mother suffered, and that the disease would follow somewhat the same course in both alike.

When we come to be acquainted with the phenomena of infantile syphilis, we find that this method of reasoning is not of much assistance; indeed, that it is very likely to lead us wrong, and we are justified in putting aside all theories, and in having our minds free and unbiased in the examination and consideration of the phenomena.

Are we then, it may be asked, to deny to syphilis any relation to any other form of disease? Are we to suppose that the general principles which apply to the evolution of symptoms in other forms of infecting diseases do not apply to it? We can only reply that we have not sufficient data as yet to decide to what extent those principles are applicable, and that though it is highly probable that syphilis is no exception to them, it is not impossible that they do not apply to the same extent as is true of the diseases referred to.

Two cases have come under my notice which bear upon this question, and I shall mention them as they made a great impression upon my mind when they were under observation, and other observers have probably had similar experience. They were cases of very young children suffering most distinctly from ague, inherited from their mothers, who had been the subjects of ague many years before their marriages. In both cases the mothers had lived up to about the age of seventeen in a district where ague is still prevalent, namely, the Romney Marshes. They had left there when they married. In one instance the mother had a single attack between five and six years after she left Romney, and two years before the birth of her child; in the other case nothing of the kind

had happened. The places they went to were remote from Romney and were quite free from ague, and the children had not been exposed to miasmatic influence. The effects of quinine upon the children were most decided and satisfactory, and the attacks entirely ceased. They were both cases of tertian ague. The spleen was much enlarged in one child, and slightly in the other. One child was under two, the other under two and a half years of age.

If the mothers had been the subjects of ague during their pregnancies, we might have seen nothing unusual in the infants contracting it, but the circumstances I have mentioned suggest possibilities which seem to bear upon the question of transmitted syphilis.

They bear, however, upon one class of cases only, and that not a very large class. Experience proves that it is more frequently from the father than the mother that the disease is transmitted to the offspring. This is why we find it difficult, if not impossible, to reason by analogy respecting infantile syphilis. Our knowledge of the laws of transmission of disease of any kind from the paternal side alone is very insufficient. It is a subject full of interest, and one to which I have given great attention, but without arriving at any conclusions from which a law or principle could be deduced. There is no case in which the paternal influence is so decided as in syphilis, and we may agree to defer any attempt to arrive at general laws until we have established the law in this particular instance.

It is important then to have a very clear idea of the question we are dealing with. Those cases of family syphilis where the mother has been infected before her marriage, have been already carefully studied; and these are almost the same as those where the mother has been infected after marriage—directly and primarily—just in the same way as men are infected, and not after conception.

We conclude in these cases that the mother is the origin of infection, and that, of course, she is the sole origin of it when she has been infected previous to marriage and

her husband is healthy. I need not mention the sources from which our knowledge on this point is obtained, for many and distinguished observers in almost every country are to be found who have contributed more or less abundant and accurate information upon it.

The cases of most interest now, because they have been less studied, are those where the mother has been healthy at the time of marriage, and where the sole source of infection has been paternal. If the mother has been infected, she has been so, not as in the former case by direct means, but only through and after conception. Our object, therefore, in dealing with this class is to show the relation, not between the mother and her offspring, but between the offspring and the father; and this, not in a general and indefinite way, but with all the details on the one side, and all on the other, omitting none, however indirectly they may appear to bear upon the phenomena under notice.

It may seem unnecessary to state thus stringently the mode of conducting the inquiry, but there are good reasons for our doing so if we are to save ourselves from useless labor, and the most useless labor of all, namely, the attempt to use data collected by those who have not had the distinct object before them, which is engaging our own attention. I can illustrate this well from what is experienced by those who have had to do with specimens in a museum of which the description on the label is all that is known about them. Such specimens are of more trouble than value, for they are very likely to mislead. This remark applies still more truly to a geological museum, for it is well known that if a specimen is not most accurately labelled, and the precise locality from which it has come is known, it has no proper place in a scientific collection. So with cases of infantile syphilis, if we have not all the details, the conditions of the infants fully described on one side, and on the other all the history of the parents—not a second-hand account given by a wife of a husband, or by a husband of a wife, but accurate and personal detail—the case is of no use to us.

If I explain the plan that I have pursued for some years in the arrangements of the facts of each case so as to show the relation between the children and the parents in a convenient way, I think it will be seen more clearly what kind of questions such an arrangement helps us to decide. It is only a matter of regret to me that I did not begin much sooner to adopt it, for a large number of cases of infantile syphilis passed under my notice in the earlier years of hospital work, but the notes I kept are useless. They were accurate enough, but they referred only to the infants and the mothers; and as case after case occurred where the mother had never suffered in any way, the condition of the infant was in itself of no special interest, without the very important antecedent—the history of the origin of infection—the history of its father.

Many years passed before the absolute necessity of such data became apparent, and I have good cause to realize the force of the Hippocratic reflection that opportunities must be promptly seized or they escape, and that human life is short indeed compared to the great past and greater future of our art. How rightly Trousseau judged of the importance of this work becomes more and more apparent as case after case is added to our list,—“Had we only succeeded in establishing on a solid basis the pathology of syphilis in early infancy, the gain to science would have been very precious.”

When an infant is brought with some sign of congenital syphilis, the first point to decide is whether it is a case of maternal or paternal infection, that is to say whether the mother has been primarily infected or not. Supposing that the mother has been twice married, and that there is proof of the first husband being syphilitic, we must exclude the case as imperfect. We can learn nothing definite of the father, and the chief interest of such a case is the light it may possibly throw upon the law of transmission from an infected mother and a healthy father, that is, assuming that on inquiry of the second husband we find he has never suffered. These cases have a special value and form a special class.

The same is true if the mother has been primarily infected before marriage, and her husband has never been infected.

The question that presents itself here is this: Does it make any difference to the offspring of a second marriage whether the mother was infected by the first husband primarily or by conception? We will refer to this question presently.

Supposing the next case, which is most common in hospital and family practice, that the child shows certain signs of congenital syphilis, but the mother has never shown any at any time since her marriage, and was quite healthy before. We have then only to deal with the history of the father, and we have no means of obtaining this history except from the father himself. Assuming that we can and do obtain such a history, we then have on one side the paternal conditions in all their details. On the other the infantile conditions, and we can compare one with the other, and if we find that as the one varies the other varies in a fairly constant degree, we may arrive at a proximate solution of the relation between them.

I.	II.	III.	IV. S ¹ or S ² .	V.	VI.	VII.
Name or number for reference.	Interval of time between infection of the father and marriage.	Interval of time between marriage and present date.	S ¹ .—The mother was <i>primarily</i> infected. S ² .—The mother was infected by conception.	History of the father, especially of symptoms which accompanied and followed infection.	History of the mother, especially of the symptoms, if any, which have appeared of infection.	History of the offspring, <i>i. e.</i> , of the number of conceptions, of miscarriages, premature births, or of children born alive and their histories.

For the arrangement of these details, I have adopted the foregoing plan, which include all cases of infantile

syphilis whatever the circumstances may be which characterize them.

Let me give one or two examples of cases thus arranged, and if the details appear to be very limited, it must be remembered that they are not thus limited in the full account taken in our note book. Many interesting details are necessarily omitted almost from every history when it is thus treated, but the reasons of that will be appreciated if the special object of this analysis be kept in view.

EXAMPLE I.

I.	II.	III.	IV.	V.	VI.
No. 25. Ref. Bk II. p. 51.	3½ years.	4½ years.	S ² .	Æt. 29, under treat ^m at French Hosp. for 7 m. bubo. No sore throat or erup- tion.	Æt. 26. In fair health. Scrofu- lous scars on neck. No syphi- litic symptoms at any time.

VII.

- | | |
|-----------------------------|-------------------------------|
| 1. Miscar. | 5. Present. 7-m. child; æt. 5 |
| 2. do | weeks. Snuffles 3 days after |
| 3. 7-m. child; died 6 days. | birth; small, wasted, waxy; |
| 4. 8-m. " " 3 weeks. | well-marked periostitis. |

EXAMPLE II.

I.	II.	III.	IV.	V.
No. 28. Case Bk IV, p. 80.	1¾ years.	S ¹ .	Æt. 27. Under treat. St. Peter's Hosp. 15 m. bef. mar.; soft chan- cres; sore throat followed.	Æt. 25. Infected 6 m. bef. mar. by kissing her hus- band; chancre on lip; well at time of marriage.

VI.

1. Miscar. 3 m. after marriage, in third month.
2. Present. Æt. 3 m. Left elbow-joint swollen, periostitis, general cachexia, fissures round mouth.

Up to the present time, the number of cases of which histories have thus been obtained has only amounted to

41 out of a total of 300 cases of infants, of whom in the other 260 the histories were imperfect. The facts may be relied upon in the 41 cases as stated by both parents in perfect good faith, and with the understanding that in giving the facts they were acting for the good of the child under treatment, and of those in the future. By explaining to them the importance of accuracy of statement and the advantages to be derived from it, willing and intelligent co-operation was secured.

It is proposed to take the cases one after the other as they occurred making such remarks as may appear proper and necessary.

ON HIP DISEASE IN CHILDHOOD.

BY G. A. WRIGHT, B.A., M.B., OXON., F.R.C.S., ENG.

Surgeon to the Children's Hospital and Assistant Surgeon to the Royal Infirmary, Manchester, England.

[CONTINUED FROM PAGE 93, FEBRUARY NUMBER.]

Treatment.—The earliest treatment of joint disease was by counter irritation usually of a violent kind, such as cautery, caustics, issues, setons, blisters, and so on, together with leeches or bleeding, and with this more or less perfect rest to the part, but with little attention to position or the true principles of maintaining rest, hence the most imperfect results at best were obtained. Following this stage of the therapeutics of joint disease came the period of mechanical appliances with the objects of maintaining rigidity of the joint and of placing and keeping it in a useful position, later came extension as a means of lessening pain and irritation. The third and last stage at present is the one which seeks, after investigation of the pathology of the disease, to supplement the insufficient natural processes by removal of diseased parts, and in cases where it is possible for a natural recovery to occur to put the injured tissues in the best possible condition

for such recovery. We are hardly even yet in a position to sum up the evidence in favor of these various modes of treatment, still experience is growing and we can come to a provisional conclusion.

It is perhaps hardly worth while to examine at length the older methods of treatment. Caustics and calomel, and opium or iodide of potassium together with confinement to bed, and an unwillingness to attempt any operative treatment, even the opening of abscesses, was the main feature.

Thus Ford observes, that from the time of Hippocrates downwards, caustic issues long kept open were the principal form of treatment, and he mentions cases of his own which show that such management extending over periods varying from two to five, or "several" years, resulted in cure by ankylosis, but he remarks that, as a rule, they did as well without treatment, while one case, which was kept in bed on account of the constitutional state, got well. He was strongly against interference with abscesses, and entirely disagreed with Freke, who, on the ground that the disease was the result of an "acrimonious synovia," recommended early opening of abscesses, while Copeland, the editor of Ford's work, condemns the freedom of Van de Haar, who in 1782 opened an abscess of the hip and explored the acetabulum with his fingers. Bonnet was well aware of the good effects of putting the limb in proper position, both as a means of relieving pain and diminishing inflammation, while in the more chronic synovial¹ cases he advocated "percussion baths" with frequent movement. He treated his cases of abscess with much greater freedom, opening them and applying the actual cautery to the abscess sac on antiseptic principles, just as some of the French surgeons do now.

Brodie advocated the use of caustics and extension by weight, and although he was sceptical as to the frequency of absorption of abscess, was not urgent in his advocacy of opening them; while in "scrofulous disease," tonics, rest, Earle's bed, and pressure were his main resources.

¹ Fungous disease of the hip.

In regard to more modern treatment it will be convenient to consider the question of excision separately. In the earlier stages of the disease there is a general agreement among surgeons that rest,¹ immobility, and time are the main factors in a cure, while general hygienic and tonic treatment, good air, especially sea air, and good food are all important, though useless without local treatment. Such means may be supplemented by opium to relieve pain, mercury in small doses, and counter irritation. Such is the substance of the expressed opinion of most writers.

The exact means of carrying out this advice is a matter of opinion, long splints, simple weights, leather, or starch, or plaster-of-Paris splints, and special apparatus such as those of Sayre, Thomas, and Gillingham, etc., to be hereafter mentioned.

Early opening of abscesses is now generally advocated, although Billroth advises that they should only be opened if an operation is intended to be performed afterwards. Barwell following Bauer approves early *tapping* of abscesses. Holmes prefers leaving abscesses alone unless there is pain and increasing swelling. Lister says they *must* be opened.

Macnamara advises local application of belladonna in synovitis, and in cases of abscess advises opening but no extension, preferring the shortening and false joint which may result from drawing up of the head of the femur. He prefers, too, an opening at the lower border of the gluteus maximus to the inner side of the middle line, so as not to interfere with a Thomas's splint. He especially insists on the importance of getting tuberculous patients up and about, and condemns rest (that is, in bed). For myself I agree that abscesses should be opened, but as there then remains what is practically a sequestrum as the source of the abscess I think it should be removed—*i. e.*, the upper end of the bone excised (except in cases of residual abscess *vide infra*).

Extension.—In 1860, Mr. Barwell, by his experiments

¹ It is worth noticing that Mr. Parker, who expresses himself disappointed by the results of rest, records a case where disease in the other hip came on spontaneously during rest. I have more than once seen the same thing.

by means of extension and driving wedges into the space between the head of the femur and the acetabulum, demonstrated that no lengthening could possibly be produced by any cause of such a nature. His experiments were, however, devised to disprove the occurrence of real lengthening in the early stages of hip disease; they have an additional value in their bearing upon the treatment of hip disease by extension.

Dr. E. H. Bradford, of Cambridge, U.S.A., made further experiments by extension, and found that, though in an adult a weight of 150 pounds produced no separation of the head of the femur from the acetabulum, yet in the fetus it did do so, a fact explicable by the softness of the cotyloid cartilage and other factors of the joint at that age, and so in disease the softening produced by inflammation of the tissues no doubt does enable extension to have an appreciable separating power.

I have found that too great extension may be a cause of painful spasms, and it is well to bear this in mind that too little or too great extending force are alike inefficient. In cases where treatment without operation is carried out, as for instance where adhesions, the result of old inflammation exist, or muscular contracture has taken place, the deformity may be remedied in many instances by the ordinary extension apparatus of a weight, or by Bryant's splint. In other cases where simple extension is inefficient, or too tedious, it may be necessary to forcibly straighten the limb under chloroform, and then fix it by splints in its new position. The advisability of forcible straightening is a somewhat disputed point, and is not in all cases free from risk, not only of laceration of important structures, but of setting up fresh inflammation in the joint, or what remains of it.

Mr. Howard Marsh and, in 1836, Sir Benjamin Brodie advised that the extension should be made in the axis of the limb, as it is at the time, and the direction should be altered as the limb regains its normal position. I do not think this is a matter of great importance.¹

¹ If it is desired to carry out this plan probably Hodgen's splint or fracture of the thigh would be the most efficient apparatus.

It is sometimes a matter of difficulty to remedy the mal-position of the limb in cases of fixation in combined flexion and adduction or abduction. Here, where possible, gradual reduction by a Bryant splint is the best treatment; failing this, and it cannot be always used, a long splint on one side, with a weight to the mal-placed side, should be tried; and, failing this, careful straightening under chloroform. These methods are, I think, better than remedying the deformity by weights applied laterally. In more acute cases, where the deformity is mainly due to spasm, gradual extension is best, but by some means the limb must be got as quickly as possible into good position.

Myotomy was at one time extensively practised, but is very rarely necessary. It is chiefly required in the class of cases to be next described.

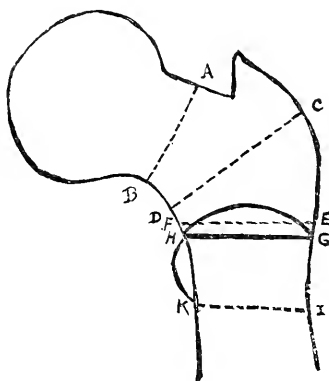
Where, as the result of nature's cure of the disease, ankylosis has taken place with much deformity, usually flexion, nothing short of osteotomy is of any use, and here the adductors longus tendon, and perhaps others,¹ may require division subcutaneously before the limb can be brought straight.

Osteotomy.—Osteotomy may be performed in several different ways. Adams' operation is sawing through the neck of the femur on a line parallel with Pouparts ligament, through a small puncture made at the upper part of the great trochanter. This is only applicable to cases where ankylosis has taken place without much destruction of bone, hence chiefly in rheumatic cases. He first performed it in 1869, and it has been done many times since. Gant's operation is infra-trochanteric osteotomy, where the femur is sawn through just below the great trochanter, and is applicable to cases where the upper end of the bone is destroyed. Rhea Barton's² plan was to divide the femur between the trochanters; and Sayre removes a piece, semicircular in transverse section, by a horizontal section of the bone below and a curved section above.

¹ The adductor brevis pectineus Sartorius, and rectus, and tensor vagina femoris have all been divided, as well as the adductor longus.

² Barton in one case excised a portion of bone; in the other merely divided it.

The object of these two latter operations is to procure a new movable joint. I have seen good results from sections through the neck and below the trochanter, with of course bony union in the new position. Of Barton's and Sayre's operations I have no experience. They have both, however, had good results.¹ Mobility has been obtained after simple section, as in Mr. Lund's case (*Brit. Med. Jour.*, 1876).



Outline showing the lines of section in the principal modes of performing osteotomy for ankylosis of the hip-joint. A. B., Adams' line; C. D., line of section applicable to most cases after chronic hip disease; E. F., Rhea Barton's line; G. H., Sayre's line (plain line); I. K., Gant's line. Volkmann's is practically the same as Sayre's.

The operation is not free from risk. In one case that I divided the femur, partly with saw, partly with chisel, carrying my section obliquely through the trochanter, although the disease had been long quiescent, fresh mischief was lighted up, sinuses reopened, and I had to excise the head of the bones; the section of the bone had quite healed with little trace left behind.

In 1877, Mr. Bryant divided both femoræ with a chisel below the trochanters in a case of double ankylosis, and, on the thirty-first day, an old sinus reopened, and the patient died of pyemia and bed-sores in thirty-seven

¹ Barton's case was movable for seven years, then ankylosis appeared; of Sayre's first two cases, one was completely successful for five years at least; the second was followed by abscess and necrosis, and the woman died of tubercular pneumonia. An artificial joint with cartilage, a "synovial membrane," and "complete capsular ligament" was found.

days. After osteotomy the limb should be steadied with a splint and moderate extension applied.

In applying extension by weight it should be made an invariable rule to make traction from the condyles of the femur, and not from below the knee. A case is on record in which prolonged extension applied below the knee resulted in separation of the upper epiphysis of the tibia. It is also objectionable in that it throws strain upon the knee-joint and is more apt to slip off. The strapping should always, if possible, be applied for some hours before the weight is attached, in order that the plaster may get set, and not be dragged off by the weight. The strapping (of which Leslie's brown Holland is the best) should be kept from the skin by lint, a strip of flannel bandage, or part of a stocking, to protect the sharp edge of the tibia and the prominences of the joint from pressure. A very good plan, used first I believe by Mr. Wilson, of the Royal Infirmary, Manchester, is to fix the strapping between layers of plaster-of-Paris, some turns of which should be taken round the foot to prevent cutting of the ankle, or the extension may be made from the sole of a stocking, the leg of which is fixed by bandages. In all these plans the principle is the same.

Aspiration and Incision of the Joint.—Aspiration or incision of the joint with a small knife is a treatment that has been employed now for a considerable time, and is undoubtedly useful as a means of relieving pain and tension where these are prominent symptoms, and in case the disease is synovial, alone and acute, may prevent supuration and aid in producing perfect restoration of the joint. In suitable cases it undoubtedly does at once relieve pain, but it is only applicable to the cases I have mentioned; where there is disease of the bone or suppuration. I do not think it does anything more than temporary good. The aspirator needle or knife, an Adams' osteotomy knife is a convenient instrument, may be passed into the joint either immediately above or behind the trochanter, and the capsule freely incised so as to ensure opening of

the joint. It is not always easy to open the hip-joint in this way, and the section must be made boldly in the capsule though the skin wound is limited to a puncture; the opening is then closed and left to heal. I have seen this treatment do great good, and I have seen it entirely fail. I prefer the knife to the aspirator, although the latter has the undoubted advantage of telling us what the nature of the fluid in the joint is.¹

Free incision of the joint with subsequent drainage is an operation in favor with some surgeons; it is applicable to cases where suppuration has occurred as a result of synovitis, or as a palliative measure in abscess secondary to osteitis, in the latter by relieving tension it tends to prevent further extension of inflammation in the bone though it is not sufficient to cure the disease, the opening may be the means of allowing the products of destruction of the bone and cartilage to escape at a later time. Incision may be made at the front of the joint between the Sartorius and rectus femoris, the former being drawn inwards and the dissection carried through the iliacus until the capsule is exposed, if preferred, the joint can be reached easily also by drawing outwards the Sartorius and so coming down upon the iliacus, or the incision may be made into the back of the joint, dividing the external rotators as in excision, the latter is preferable as affording better drainage, though a better view of the condition of the cartilage can be obtained from the anterior incision; where it is used a counter opening should be made behind by pushing a director across the joint and cutting down upon it behind the trochanter, a drainage tube may then be passed through the joint. I cannot say I am favorably impressed by this plan of treatment, from what I have seen of it, two of my cases I excised later and one remained with an open sinus.

From my notes of cases collected, I find that incision has a higher mortality than any other mode of treatment, but the number of cases is of course small, and some surgeons recommend it.

¹ Lister has three times incised suppurating *rheumatic* hip-joints with complete success, mobility and absence of shortening resulting.

Where disease is extensive, except as an exploration, I do not think the operation a good one.

Excision or Resection.—Exception has been taken to the use of the word excision as applied to the operation usually employed in the hip, on the ground that the joint is not excised but only one articular extremity removed, and although it may be said that in many cases more or less complete removal of the acetabulum is also effected, it is true that objection may be raised to the term and resection may be preferred, that, too, however, is a term of doubtful meaning. As, however, the word excision is in general use and its meaning understood, it will still be employed here. Excision of the hip is an operation quite of recent development, although it was suggested first in 1869 by White, of Manchester, Schlichtling and Schmals were the first to perform the operation in 1816, this, however, appears to have been mere removal of the loose head of the bone, as in the cases of Hoffman, Batchelder, and Klinger. A. White, of the Westminster Hospital, did it in 1818 or 1821, and Hewson in 1828. Brodie is believed to have done it in 1836. Abrond, Texter, and others operated eighty-six times from 1834 to 1845 with one recovery. Sir W. Fergusson revived the operation in 1845, and did five cases up to 1876, all recovered. White's patient died of pthisis five years after.

Indications for Excision.—The indications for excision of the hip form one of the most disputed and difficult questions as regards the disease; the general tendency of recent surgery being to operate much earlier than it was a few years ago.

Mr. Holmes, writing in 1868 (*Diseases of Children*), remarks that cases of hip disease in the children of the poor must, by force of circumstances, be judged on different grounds to those where prolonged treatment, necessarily extending over several years, can be carried out. He agrees with Ford that caries is an indication for operation, at least in hospital cases, especially where there is visceral mischief, or progressive failure of health, neither does he think that hectic, amyloid disease, pelvic *necrosis*,

or extensive abscess, is any bar to the operation, nor the impossibility of removing the whole disease, he considers that the operation is applicable almost wholly to children, but that extensive caries of the pelvis or phthisis is, except as a palliative, a contra-indication.

Bryant, in his edition of 1876, classes excision as an operation for necrosis, and, therefore, necessary when that is present, and sees no contra-indication in superficial acetabular disease, because, as he says, it is secondary to the femoral, but he condemns gouging of inflamed bone.

Erichsen considers it never necessary in the "arthritic" variety but strongly advocates it in the "femoral."

Annandale operates as soon as there is suppuration.

Barwell regards excision as a means of treatment and not as a last resort, though he apparently does not advocate very early operation.

Gross and Sayre advise early operation.

Macnamarra apparently is not an advocate for excision as a common practice, preferring less radical measures for a time, and failing these, amputation in a large proportion of cases.

Howse, I believe, advocates early excision, and always does it when there is grating in the articulation.

Croft advises excision if there is necrosis, and even when the condition of the bone is uncertain; if there is pus he prefers it.

Indications for Excision.—The Clinical Society's Committee concluded that the *pathological* indications for excision are:

- (1.) Necrosis of the femur, or formation of large sequestra.
- (2.) Extensive caries.
- (3.) Intra-pelvic abscess from acetabular disease.
- (4.) Long continued suppuration.
- (5.) *Pelvic disease is not a contra-indication.*

The *clinical* indications are:

1. Rapid onset of suppuration, with severe local and constitutional symptoms.
2. General albuminoid disease, and long-continued suppuration in spite of other treatment.

Mr. Croft's cases and results are instructive; from them he deduces the following rules for treatment:

1. When there is fluid in and about the joint, with starting pains, an antiseptic incision should be made, to be followed by excision if pus associated with panarthrititis be present, or necrosis.

2. The causes of failure are: (1) too late postponement of operation; (2) incomplete removal of the disease; (3) insufficient drainage; (4) not using antiseptics.

3. Early operation is advantageous for: (1) cases of tuberculosis; (2) the relief of pain; (3) the prevention of atrophy and matting together of the muscles; (4) shortening the duration of the illness; (5) enabling the child to get up and about earlier; (6) procuring a painless movable joint.

It should be noted that some of the best of the French surgeons, Oliver and others, believe that excision in cases of tubercular disease may directly lead to general tuberculosis by the carriage of bacilli through the vessels opened up by the operation. I think the evidence in favor of this view is very doubtful, and further, such cases if left alone are very likely, to say the least, to become generally tuberculosis.

Mr. Gant, in his Lettsomian Lectures, gives the following rules for excision of the hip:

1. When the health is failing, whatever stage of disease the joint is in, *excise*. Mr. Hancock took the same view.

2. Osseous ankylosis, with malposition, justifies osteotomy, not excision.

3. Extensive disease of the femur and pelvis is not to exclude excision, for the pelvis often recovers after the fracture of the femur against it is removed.

4. The prognosis for excision is bad in cases of "dislocation," which generally goes with advanced constitutional mischief.

The question of when to excise a hip-joint is no doubt a difficult one, and it is only after considerable experience of the treatment of disease of the hip by various methods

that I feel that I am able to come to some definite conclusion. Before I began work at the Children's Hospital excision was not a very common operation. It had been performed twenty-one times in three years, and a large proportion of cases of the disease were treated at home, or by the usual non-operative methods at the hospital. A very large number of children suffering from morbus coxæ have come under my care in the last five years, and I have felt it necessary to arrive at some definite rule of practice. During that time I have excised between eighty and ninety hips. The particulars of many of these will be given hereafter, but the conclusion I have come to is this. Treatment, short of excision when once hip disease is established, is useful only as a palliative, or a means of temporizing. My opinion, bearing in mind Mr. Holmes' valuable remarks on the social circumstances of these patients, is that in every case where there is suppuration in the joint, as indicated by the symptoms already mentioned, and especially by thickening of the trochanter, excision ought to be performed. In almost every instance I have found much more extensive disease than might be expected from the external evidence, unless the pathology of the affection is borne in mind, and I believe that once this chronic osteomyelitis is established, nothing short of excision can, in hospital cases, prevent the ultimate progress of the disease to abscess, and too often to gradual exhaustion of the patient by pain and discharge. Nature, of course, in many cases will, unaided, get rid of the dead bone by slow and tedious processes, but the number of children who can survive the process of elimination is very small, while the mortality after early excision is not great, and the failures are mainly in those instances where the operation has been put off till too late. Where actual necrosis, or caries of the head of the femur, with destruction of bone and cartilage, and often sequestra of varying size in the acetabulum, or at least cases of it are known to exist, I think few advocates of non-operative treatment will be found. It is then, as Mr. Bryant points out, to be looked

upon rather as an ordinary operation for necrosed bone than anything more formidable, and that this is the state of the joint even in cases often spoken of as those of early disease, is the fact upon which I should like to lay stress. My proof of it is in my collection of specimens, illustrations of some of which are appended. If we consider the hip-joint from the point of view of any other joint, what is the conclusion? A knee-joint in which there is suppuration, with caseous masses of bone in the upper end of the tibia or condyles of the femur, is not looked upon as a condition to be treated by rest, good position, and external applications, but one urgently demanding incision, excision, or amputation according to the degree of the disease, and so with other joints. The hip differs from other joints in the severity and extent of the lesion, and in its obscurity from the absence of obvious changes in the early stages; but because it is less easy to see swelling of the hip-joint is no reason why its treatment should be different. The hip, as Sayre remarks, requires the "same treatment as other joints, only requires it more urgently."

Again, while incision and drainage are sufficient for many joints, in the hip the extent of bone disease and the difficulty of obtaining thorough drainage, make such treatment inadequate. Even if it is only to procure free vent for the products of inflammation, we must remove the head of the bone, just as we trephine for circumscribed abscess, or for intra-cranial suppuration.

As soon, then, as there is any evidence of external abscess, excision should certainly be performed, and still better results will, I believe, be obtained by opening at the stage above mentioned before the pus has escaped from the articulation.

(TO BE CONTINUED.)

TREATMENT OF ACUTE INFANTILE
BRONCHITIS.¹

BY J. LEWIS SMITH, M.D.,

Clinical Professor of Diseases of Children in the Bellevue Hospital Medical College.

Infantile bronchitis is probably the most frequent disease which the physician is called upon to treat. It is usually mild and readily controlled by proper remedies, but in other instances, especially when neglected or improperly treated, it becomes by extension downward to the minute bronchial tubes, or to them and the alveoli, one of the most fatal maladies of infancy. It is, therefore, very important that bronchitis in the infant receive timely and proper treatment.

A brief glance at the clinical history of this malady will help to a correct knowledge of its therapeutic requirements. Acute bronchitis is in most instances preceded, and in its first stages accompanied, by coryza, which first arrests the attention of the parents, but within a day or two the inflammation extends to the larger bronchial tubes, and is announced by a cough. The bronchitis is often limited to these tubes throughout the attack, under which circumstances it is so mild that treatment is scarcely required, but between this mild disease and that severe form in which the minute bronchial tubes are involved, there is every grade of severity.

Bronchitis in the infant is primary or secondary. Two diseases are always accompanied by it, in a form so severe that the cough which it causes is a prominent symptom in each, to wit., measles and pertussis. It occurs also in a mild form in typhoid fever, and is present in tuberculosis, and in many cases of diphtheria. It requires, in a measure, different remedies, according to the conditions in which it

¹ Read before the Section of Obstetrics and Diseases of Children, New York Academy of Medicine, January 28, 1886.

occurs, but the treatment may be most conveniently considered under the two headings of mild and severe bronchitis.

Bronchitis can probably be aborted or rendered milder in some instances by an emetic employed when the first symptoms appear. Its effect is more certain if the patient drink warm water at the same time, and take a warm foot-bath or general bath. The syrup of ipecacuanha is perhaps the best medicine for this purpose. It promotes bronchial secretion and diminishes the force of the circulation. But ordinarily the physician is not summoned until the bronchitis is established, and measures designed to abort it are inadequate.

Treatment of Mild Bronchitis.—The inflammation is limited to the larger tubes, or to these and those of medium size; if to the larger tubes, it gives little inconvenience and often passes off without treatment. The patient is said to have a cold. In mild bronchitis the respiration is but slightly accelerated, the temperature not above 102° , the cough not painful, or attended by a slight degree of soreness in the upper sternal region; the thirst is moderate, and the appetite not notably diminished.

In this form of bronchitis, in which there is no increase of symptoms from day to day, demulcent and mild expectorant medicines are sufficient to cure the disease. Even domestic remedies are sufficient. It is of such cases that the late Dr. James Jackson, of Boston, in his advice to a young physician, wrote as follows: "For young children I employ the following: Take of either almond or olive oil, of syrup of squills, of any agreeable syrup, and of mucilage of gum-acacia, equal parts, and mix them. Of this mixture, a teaspoonful may be given to a child two years of age, a little less if younger, and increase if older, so as to double the dose to one in the sixth year."

Of the mixtures officinal in our pharmacopœia, the *mistura glycyrrhizæ composita* is perhaps the best for mild bronchitis, and it is largely used. It is beneficial not only in the primary disease, but in the secondary or symptomatic bronchitis of measles and pertussis. The

small amount of tartrate of antimony and potassium which it contains, $\frac{1}{64}$ grain to the drachm, has a slight sedative effect on the action of the heart without causing nausea, and it promotes expectoration. The paregoric in this mixture being one part to eight, is useful if the infant be restless, and deprived of the needed sleep. A patient of one year can take one-third of a teaspoonful, and one of two years half a teaspoonful, every two to four hours. The *syrupus ipecacuanhæ compositus* of the French pharmacopœia is also one of the most beneficial remedies for mild bronchitis. It is slightly laxative, and it produces no narcotic effect. It consists of the ipecacuanha and senega roots, thyme, the blossoms of the red poppy, which I believe are not narcotic, orange-flower water, white wine, sugar, and a small amount of sulphate of magnesium. An infant of eight months can take half a teaspoonful every second hour, and one of eighteen months or two years, one teaspoonful every second or third hour. I have prescribed this syrup during the last two years, and mothers who have observed its effects have commended it. As is seen from its composition, it promotes expectoration without any of the ill effects which sometimes result from the use of those mixtures which contain opiates. If it were introduced into our pharmacopœia, it would probably be largely used in this country.

If the temperature rise to 102° , or above, with the respiration in a corresponding degree accelerated, the cough painful, and the pulse frequent and strong, indicating extension downward of the inflammation, the following prescription I have found useful:

R \bar{y} —Spts. ætheris nitrosi,
Syrupi ipecacuanhæ, āā 5ij;
Ol. ricini, 5iij;
Syr. bal. tolut., 5j.—M.

Sig. Shake bottle and give half a teaspoonful to an infant of one year; one teaspoonful to an infant of two years.

Mild bronchitis, with the use of such remedies as has been mentioned, and with the external treatment of the chest, which will be described hereafter, gradually abates in most instances. But the physician should be prepared for the other alternative, namely, an increase in the severity of the symptoms by extension of the inflammation to the smaller tubes, and the change of a mild into a severe bronchitis.

Severe or Grave Bronchitis.—The inflammation has extended to the minute bronchial tubes: the mucous membrane of these tubes is hyperemic and swollen, and actively secreting. On account of the small size of the tubes, many of them become occluded by muco-pus, which acts as a ball-valve, allowing the escape of air upward from the alveoli, but preventing its entrance into them. Hence the alveoli connecting with these closed bronchioles becomes less and less distended with air, undergoing partial collapse; and some of them pass into a state of complete atelectasis. This occurs most frequently in the posterior and depending portions of the lungs.

Another equally serious pulmonary complication often occurs. I refer to catarrhal pneumonia. The inflammation in its progress downward in the most severe forms of the disease, passes from the bronchioles to the adjacent alveoli, usually in more places than one. With the occurrence of this complication the symptoms are aggravated, the suffering increased, and the prognosis is obviously the more unfavorable the greater the extent of this complication. Broncho-pneumonia thus occurring is indeed one of the most dangerous diseases of infancy, and one that requires the utmost vigilance on the part of the physician, and the most skillful use of remedies, to save the life of the patient. The respiration in severe bronchitis is greatly accelerated, numbering 60, 80, or even 100, or more, per minute, and each inspiration is usually accompanied by a moan. The pulse is in a corresponding degree accelerated, and is often feeble; the countenance is anxious and indicative of suffering, and the patient restless.

In this form of bronchitis the indications of treatment are: 1. To promote expectoration, and prevent clogging of the tubes; 2. To diminish the inflammation, and prevent its extension; 3. To strengthen the action of the heart and prevent exhaustion.

In employing measures to fulfill the first indication, it should be borne in mind that the cough is useful as the only means of expelling the mucus, and that patients never do well with severe bronchitis that do not cough often. When asked by parents to prescribe something to diminish the cough, I inform them that the safety of the patient depends on the strength and frequency of this symptom, and that it would be dangerous to put a stop to it by the use of opiate or other medicines, and I now very seldom combine an opiate with a cough mixture for severe infantile bronchitis. If the infant be allowed to cough every five or ten minutes, and the cough be rendered as loose as possible by appropriate remedies, it will do better, according to my observations, than when the cough occurs at longer intervals. If it requires sleep, I give medicine separately once or twice daily, as in the following formula for a child of one year.

R—Liq. opii compositi (Squibbs), gr. xij;
Potassii bromidi, ʒj;
Syr. rubi idæi (raspberry), ʒss;
Aquaë, ʒiiss.—M.

Sig., Dose, one teaspoonful.

I have seen much harm done by employing stupefying agents which, while they produce sleep, also cause suspension of the cough, upon the strength and frequency of which the safety of the infant depends. The very prevalent opinion among families that the cough does no good to the infant unless mucus is ejected from the mouth needs to be corrected. In order to obtain their full co-operation I often find it beneficial to explain to the mother, or nurse, the process of expectoration in the infant, so that they understand that the tubes are free from mucus

as effectually when it is swallowed, after the cough, as when it is received upon the handkerchief.

Among the agents to fulfill the first indication mentioned above—that of promoting expectoration with the least possible loss of strength—the first place must be given to the ammonium salts; the two of which in common use are the carbonate and muriate. The carbonate is both a stimulant and expectorant, but its irritating property is such that it should not be prescribed in a larger dose than one grain to the drachm; a larger dose frequently repeated may produce gastritis, especially if there be little food in the stomach. It is known to produce gastritis in animals when administered in considerable quantity, and its irritating action on the fauces can be noticed by any one who swallows a solution of two or three grains to the drachm. The Curator of the Foundling Asylum has noticed the ill effects in the cadaver of the more irritating ammonium preparations. In one instance in which the aromatic spirits of ammonia had been employed, it was supposed with sufficient dilution, the extent and severity of the gastritis were such that it seemed as if this agent might have hastened the fatal result. The preferable way of employing this valuable agent, to prevent its irritaating action upon the stomach, is to prescribe it dissolved in water, and order each dose to be administered in a tablespoonful of milk. The muriate does not possess the irritating property of the carbonate, and it can be safely administered in double or treble the dose of the latter, and at short intervals. It is therefore, I think, to be preferred to the carbonate in most cases of severe bronchitis, except at an advanced stage, when an active stimulant of the heart is required.

In this connection I will state my conviction that the ammonium salts, whether the carbonate or muriate, are not given in sufficiently frequent doses in the practice of most physicians, in severe forms of the disease which we are now considering. I there be marked dyspnea, and urgent need that the mucus be expectorated from the tubes which it is obstructing, I think that the effect

is better, if the dose be administered every half hour instead of every second or third hour. Half-hourly doses are not inconveniently given if the vehicle be milk.

The muriate of ammonium may, like the carbonate, be administered in milk, but the following is with me a favorite formula:

R \bar{y} —Ammonii muriat., ʒj;
Syr. bal. tolut., ʒij—M.

Fifteen drops, which contain one grain of the muriate, should be given to an infant of three months, and thirty drops, or two grains, to an infant of six months. Physicians, in my opinion, often defer too long the use of the ammonium salts, using for the first days depressing remedies instead. The infant suffering from dyspnea, and requiring a strong and frequent cough to expel the mucus, may, according to my observations, take the muriate from the first day of the sickness with benefit; and every half hour or hour when it is awake. No harm can result from the use of this agent in frequent doses, and for several days, such as might result from the carbonate.

The ammonium salts tend to increase the frequency of the cough, perhaps by the slight irritation which they produce upon the fauces in the swallowing. The muriate may be employed so long as an expectorant is required, and usually with as much benefit as can be derived from any drug.

As regards the use of those other common expectorants which have long been employed, particularly senega and squills, those have been better observers than myself who have witnessed any marked benefit from them.

It is so necessary as a means of relieving the dyspnea, to assist the infant to expel the mucus with which the tubes are clogged, when the respiration is much embarrassed, that an emetic is sometimes proper. One should be selected which causes little exhaustion. The syrup of ipecacuanha may be employed, given with an $\frac{1}{2}$ alcoholic

stimulant, as brandy or whiskey. Infants, a few months old, I have sometimes temporarily relieved by removing with the finger or a swab the mucus that collected upon the fauces. This simple operation produces a forcible cough, and sometimes vomiting, by which a large amount of mucus is expelled.

The necessity of sustaining the strength of the patient, and, at the same time, of reducing the fever, has led to the employment of quinine by many, perhaps most, physicians in the treatment of severe infantile bronchitis. I cannot say that I have noticed any marked reduction of temperature from its use in bronchitis or broncho-pneumonia, but it has seemed to me that it has been useful as a heart tonic. Much harm may, however, be done by employing quinine in the treatment of infants, by the use of doses too large. In the adult, according to the sphygmographic observations of Dr. Putnam Jacobi, while quinia in a dose of five grains increases the strength of the heart's contraction, a dose of twenty grains enfeebles the contractile power of the heart in a marked degree. According to Maisch and Stillé, "Poisonous doses occasion dyspnea and noisy respiration, which is also jerking, interrupted, retarded, and finally arrested" (*National Dispensatory*). A dose too large, therefore, would be likely to produce just such symptoms as occur in severe broncho-pneumonia. To an infant aged one year, with this disease, I do not give a larger dose than one-half grain to one grain of the sulphate of quinia, every fourth hour, as in the following formula :

R—Quiniæ sulphat., gr. xij ;
Ext. glycyrrhiz., ʒss ;
Syr. pruni Virginiani, ʒij.—Misce.

Quinine, however administered to an infant, is very likely to cause vomiting from its bitterness, a result which I do not regret in the treatment of capillary bronchitis, because it causes the expectoration of considerable mucus. The second or repeated dose is usually not vomited. It is

difficult to appreciate the beneficial effects of quinine in this disease, but that it does increase the contractile power of the heart seems probable.

If the temperature rise above 103° , if the infant have a full and strong pulse and flushed face, and if the lungs are not involved, or but slightly inflamed, antipyrin may, according to my experience, be safely administered, in proper dose, and with beneficial effect as regards the febrile movement. It should not be administered at stated intervals, but according to the temperature, so that, perhaps, only one or two doses daily may be sufficient. When the lungs are implicated, and the patient has severe broncho-pneumonia, I have seen such pallor from a single dose of antipyrin, in one instance, that I did not dare to repeat it. It seems to me, therefore, that there should be a careful discrimination in regard to the cases in which it should be employed, so that, while vigorous infants, with severe bronchitis, without pneumonia, or with but slight pneumonia, are benefited by its use, feeble infants, with weak pulse, or with extensive pneumonia, and young infants, incur too great risk to justify the employment of this agent, until its exact therapeutic effects are more clearly ascertained.

When the pulse is becoming more rapid and feeble from the extent and severity of the inflammation, the use of digitalis is indicated as a heart tonic. Not infrequently in severe bronchitis, with the minute tubes clogged with muco-pus, the heart is taxed to the utmost to carry on the circulation. Digitalis may furnish the needed assistance by increasing the contractile power of the ventricles. It is, therefore, an important remedy in a large proportion of cases of this form of bronchitis. Two drops of the tincture of digitalis may be given every second hour to an infant of eighteen months, during three or four days, or longer, if the action of the heart be oppressed so as to require it. But no one of the medicines which I have mentioned is more urgently needed in severe infantile bronchitis than alcoholic stimulation. It may be employed at an early stage when the heart begins to fail,

without fear of increasing the inflammation. A rule with me is to give two or three drops of brandy or whiskey for each month in the age of the infant after the third month. It should be given hourly, or each second hour, by day and by night, when the infant is awake.

Local Treatment.—The external treatment of infantile bronchitis has changed greatly within the recollection of the older members of the profession. Thirty-five years ago the pernicious teachings of Broussais still had some influence, and the application of one or more leeches to the chest was recommended in the text-books. Leeching did apparently cause some alleviation of the suffering, and, according to my recollection, an easier breathing for a time; but any good which resulted from it was more than counterbalanced by the loss of strength, as indicated by pallor of the countenance and a feebler pulse. It has been properly abandoned during the last twenty-five years by the *intelligent portion* of the profession, and is not likely to be employed again as a remedial measure. The same may be said of vesication. Under the teaching of the schools and the books vesication was employed after the bleeding from the leech-bites had ceased. Witnessing the restlessness and increase of suffering which the fly-blister produced, I abandoned its use in the first two or three years of my practice, employing instead the cantharidal collodion, applied in points or small patches, half an inch in diameter, over the anterior part of the chest. It is now many years since I have used the Spanish-fly in any of its forms, or witnessed its use in the practice of others in infantile bronchitis, and the disrepute into which it has fallen is not to be regreted.

But how shall the chest be treated? Writers mention the benefit derived from revulsive measures applied to the chest. Prof. Hensch, of Berlin, whose opinions have great weight with all who are familiar with his writings, recommends dry cupping for its revulsive effect. Says he, "Instead of leeches, I now apply wet, and especially dry cups (four to eight, according to the age), as these have at the same time a revulsive effect." The

question may properly be asked, Does revulsion do any good? How can producing an afflux of blood to the surface of the chest diminish the severity of the bronchitis, since the bronchial tubes derive their supply of blood from a different branch of the aorta from that which supplies the walls of the chest. However it may be explained, slightly irritating applications which produce moderate redness of the surface of the chest, do seem to assuage in a measure the suffering of the patient, and aid in procuring the needed rest. After observing their effects for many years, I have found no better mode of external treatment for infants under the age of two years, and for all weakly infants, whatever their age, than the application of a flaxseed poultice properly prepared. But instruction should be given in the preparation and application of the poultice, with all the details which Abernethy was wont to give to his class. A poultice which, in a few hours after its application, lies in a mass upon the epigastrium with the chest bare, does more harm than good. The poultice should be of uniform thickness, of about a line, between two thickness of linen or thin muslin, and so moist that it wets the hands in holding it. For infants under the age of six months, camphorated oil should be thickly smeared on its under surface; for those between the ages of six and eighteen months, instead of the camphorated oil, the flaxseed should be mixed with one-twentieth its weight of pulverized mustard, and for those above the age of eighteen months the mustard should be one-sixteenth part. In all those cases in which the respiration is not only hurried but painful, and accompanied by a moan, and in which the cough is painful, the whole chest should be covered by two poultices, as thin as mentioned above, one over the anterior and the other over the posterior surface, fastened together over the shoulders and under the arms by small safety-pins, and covered externally by a snugly-fitting oil silk jacket. The poultices thus made should be reapplied morning and evening. They usually cause redness of the surface without pain, but they have never, in

my practice, vesicated. They should be continued during the active period of the inflammation. Repeatedly, I have observed the breathing become easier by their use. At the same time, if the febrile movement be so great that it requires to be reduced, an ice bag may be placed upon the head, and the hands and forearms be frequently sponged with cool water, or alcohol and water.

Cool water dressing to the chest has its advocates, and, although I believe that the poultices give most relief to the majority of infants, it does not seem improbable that robust infants over the age of twenty months with high temperature may sometimes obtain relief from its use. Prof. Hensch writes: "I strongly advise hydropathic applications to the chest from the neck to the umbilicus, A napkin or diaper is dipped in water at the temperature of the room, well wrung out, and then placed around the chest, without exercising any compression, so that the arms are free. This is surrounded by a roll of batting, and then covered by a layer of oil-silk or gutta-percha paper." If the temperature be high, this application should be renewed every half hour, and it may be continued several days. If it be renewed at long intervals, its effect is obviously like that of a poultice.

If the patient begins to convalesce the application to the chest, whether water or the poultice, can soon be omitted, and batting covered with oil-silk be substituted for it. Finally, the position of the infant, when there is marked dyspnea, indicating extension downward of the inflammation, should be frequently changed, since a change in position tends to prevent pulmonary congestion, and aid the expectoration. If the infant be placed over the shoulder or upon the lap of the nurse with face downward, its expectoration is often facilitated. Moisture in the room, as that produced by boiling water, also aids the expectoration, probably by rendering the muco-pus thinner and less viscid. When bronchitis occurs in a constitutional disease, as measles or pertussis, as an element of it, it continues as long as that disease lasts, but it can be milder or less annoying to the patient by remedies such as those mentioned above.

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Bradley: *Diagnosis of Infantile Diseases*. (*L'Union Méd. du Canada* [*Medical Advance*], June, 1885.)

1. Congestion of the cheeks in children, excepting in cases of cachexia and chronic disease, indicates an inflammatory or a febrile condition. 2. Congestion of the face, ears, and forehead of short duration, strabismus with febrile reaction, oscillation of the iris, irregularity of the pupil, with falling of the upper lids, indicate a cerebral affection. 3. A marked degree of emaciation which progresses gradually, indicates some subacute or chronic affection of a grave character. 4. Bulbar hypertrophy of the fingers, and curving of the nails are signs of cyanosis. 5. Hypertrophy of the spongy portion of the bones indicates rachitis. 6. The presence between the eyelids of a thick and purulent secretion from the Meibomian glands may indicate great prostration of the general powers. 7. Passive congestion of the conjunctival vessels indicates approaching death. 8. Long continued lividity as well as lividity produced by motion and excitement, the respiration continuing normal, are indices of a fault in the formation of the heart or the great vessels. 9. A temporary lividity indicates the existence of a grave acute disease, especially of the respiratory organs. 10. The absence of tears in children four months old or more suggests a form of disease which will usually be fatal. 11. Piercing and acute cries indicate a severe cerebro-spinal trouble. 12. Irregular muscular movements which are partly under the control of the will during the hours when one is awake, indicate the existence of chorea. 13. The contraction of the eyebrows together with a turning of the head and eyes to avert the light, is a sign of cephalalgia. 14. When the child holds his hand upon his head, or strives to rest the head upon the bosom of his mother or nurse, he may be suffering from ear disease. 15. When the fingers are carried to the mouth, and there is, beside, great agitation apparent, there is probably some abnormal condition of the larynx. 16. The act of scratching or of pinching the nose in children indicates the presence of worms or of

some intestinal trouble. 17. When a child turns his head constantly from one side to the other, there is a suggestion of some obstruction in the larynx. 18. A hoarse and indistinct voice is suggestive of laryngitis. 19. A feeble and plaintive voice indicates a trouble in the abdominal organs. 20. A slow and intermittent respiration accompanied with sighs, suggests the presence of cerebral disease. 21. If the respiration is intermittent but accelerated, there is capillary bronchitis. 22. If it is superficial and accelerated, there is some inflammatory trouble of the larynx and trachea. 23. A strong and sonorous cough suggests spasmodic croup. 24. A hoarse and rough cough is an indication of true croup. 25. When the cough is clear and distinct, there is bronchitis. 26. When it is suppressed and painful, there is pneumonia and pleurisy. 27. If the cough is convulsive, it indicates whooping-cough. 28. Sometimes one sees a dry and painless cough in the course of typhoid and intermittent fever, in the course of difficult dentition, or an attack of worms, under these conditions the cough is often due only to a bronchitis which has been caused by the original disease.

A. F. C.

Northbridge: The Salicylic Acid Treatment of the Intestinal Catarrh of Infancy. (*N. Y. Med. Jour.* Aug. 29th.)

Whether diarrhea be due to teething, improper food, action of heat on the sympathetic nervous system, or to any combination of conditions as exciting causes, there seems to be very little doubt but that the proximate cause is a pathological condition, probably due to microscopic organisms. In salicylic acid we have a remedy of great value in their treatment; of course aided by proper nursing, dieting, and hygienic surroundings. Salicylic acid is absolutely harmless and safe; children bear it very well. It may be administered to a weak infant in comparatively large doses, say one grain and a half every two hours, without danger. The formula used at the sanitarium is in the following proportions:

R_x—Acidi salicylici, gr. iij; }
 Cretæ preparatæ, gr. ij;
 Syrupi simplicis, 5j.—M.

This much at a dose to a child of six months or over every two hours. The patient will begin to improve after the administration of a few doses, and in twenty-four hours the case generally will be markedly better. It will

be noticed that the passages diminish in frequency, the watery greenish-yellow stools being replaced by those commencing to have consistency and to assume a more natural color. There is rarely a sudden cessation of the diarrhea. Histories of eight cases are related in which there was a favorable result, the average duration of the disease from the giving of the first dose being two days and three-quarters. The gradual cessation allows time for the clearing out of any of the products of inflammation or fermentation and the installation of healthy intestinal action. Its principal modes of action are two: 1. By its anti-fermentative powers, by which it destroys or restrains the vital activity of the living ferment to which the acid fermentation is due. 2. By the alterative medicinal quality inherent in salicylic acid, the salicylates, and salicin in common. This mode of action is through the blood. The author in conclusion states: (1.) That in salicylic acid and its derivatives we have most valuable remedies in the treatment of diarrheas, and especially in those occurring among children during the heated term. (2.) That its remedial powers are due, first, to the anti-fermentative powers of the acid acting locally; second, to an alterative effect through the circulation. (3.) That it is an efficient substitute for opium in those cases where that drug is contra-indicated.

Adamson: Tincture of Iodine in Diphtheria. (*Practitioner* [London], July.)

After failure with chlorate of potash and other internal remedies, the writer determined to try iodine. He has found in it the agent the profession has been seeking so eagerly, as it aids in the separation of the membrane and checks its further formation, it is antiseptic and removes the fetor from the mouth and breath. In thirty-six hours after beginning its use such marked improvement is noticed even by the patient that he is often eager to increase the dose that cure may progress more rapidly.

Of fifty-five cases treated by this drug alone, there were only two deaths, and some were exceedingly grave cases.

The doses given were M. ij to iij every two hours to a child of six or upwards.

In the same journal *Kurnauder* writes on the treatment of diphtheria, that if taken in time it is generally amenable to treatment. He begins by tartar-emetic, follows this by neutral salines, and has the room impregnated with the vapor of creosote. The patient drinks a weak

solution of hyposulphite of soda, or sulphurous acid. It is refresh in ginthese days, when diphtheria is the scourge of almost every town and city, to find somebody that is fully able to cope with it and who is satisfied with the results obtained.

[Barbillon: The Employment of Cocaine in Whooping-cough. (*Rev. Mens. des Mal. de l'Enf.*, Aug.)]

Whatever theory may be adopted as to the origin of this disease, the fact is very evident that an exaggerated excitability of the pharyngeal mucous membrane plays an important part in producing the characteristic violent paroxysms of coughing by which the disease may be recognized. The remarkable results which have been obtained from the use of cocaine in the various painful and spasmodic affections suggested to Labric its use in whooping-cough. The solution which is recommended consists of

R—Water, grams, 10.
Cocaine hydrochlorate, grams 0.5

With this solution applications should be made with a brush upon the pharynx, isthmus of the larynx, the tonsil and base of the tongue, and a few drops should be allowed to fall within the larynx. Coughing usually follows a first application of this kind, but rarely a second one. No other treatment was used by the author upon the cases whose histories he details. The number of paroxysms was greatly diminished. Children who had been suffering with fifteen to twenty attacks in the twenty-four hours, would have only five, six, or ten on the same day or the day following that in which this treatment was begun. It was also observed that the drug did not lose its efficacy after repeated applications, as is the case with some others, morphine for example. As to intensity it appeared that the paroxysms became less severe, but positive statements upon this point were not made, since they (the paroxysms) are wont to be unequal in force in almost all cases. Another important effect is the suppression of the reflex vomiting which is so common in this disease, and which may have quite an important bearing upon nutrition. The appetite was not unfavorably affected in the author's experience, an event which was feared on account of the anesthetic action of the drug. Indeed both eating and sleeping were accomplished under much more favorable conditions and with better results than under other modes

of treatment. Whether the disease can be shortened materially by the use of cocaine, the author is unprepared to say, on account of insufficiency of experience. He considers that a case is cured in which the paroxysms are absent for fifteen days. A. F. C.

Willeford, Geo. W.: *Rhus Aromatica* in the Treatment of Enuresis. (*N. Y. Med. Record*, Sept, 12th.)

Trials with the above drug have been confined chiefly to the treatment of children. For a child ten years of age ten or fifteen drops of a reliable fluid extract is usually prescribed, three or four times a day, say a dose after each meal and at bedtime, to be given in a little glycerine and water, or other suitable excipient. No special nicety need be observed in regard to dosage, as it is regarded as harmless if given in any quantity which an intelligent physician would be likely to prescribe. *Rhus toxicodendron* is of no benefit in enuresis. The good effects of *rhus aromatica* are usually manifested quite promptly—frequently giving relief within the first two or three days. The doctor has also found the drug useful in the diarrheas of both adults and children arising from intestinal indigestion.

Judkins, W.: A Case of Morphia Poisoning in a Child Aged Fifty Hours. (*N. Y. Med. Record*, Aug. 8th.)

Dr. Judkins reports a case where by mistake a quarter of a grain of morphia in solution was given to an infant aged fifty hours. At the time the doctor was summoned, the child was cyanotic, breathing only three times to the minute, and that very feeble; pulse barely perceptible. Immersions in hot water were at once commenced, and whiskey hypodermatically in the gastrocnemius, strong black coffee was also administered per *orem* and anus. After two hours constant work, respirations increased in frequency and the heart's action became stronger. Recovery was final, and now, ten weeks after the accident, the child is as well and bright as could be wished. The catheter had to be used several times during the first twenty-four hours, and three abscesses were opened that were produced by the frequent introduction of the hypodermic needle. There is probably no similar case on record.

2. MEDICINE.

Moncorvo: Dilatation of the Stomach in Children, and a New Means of Exploration for the Purpose of Recognizing it. (*Rev. Mens. des Mal. de l'Enf*, July.)

The author first called attention to this lesion in 1883, and showed that it existed even among very young children, though not previously recognized by systematic writers upon children's diseases. He also observed that it coincided in almost every case with the symptoms of gastric catarrh of variable intensity, and more or less prolonged continuance. In addition, in all the cases which were observed, there had been a bad alimentary hygiene, the majority of the children having been brought up upon the bottle, and only a small number upon a mixed diet. Such a method of nutrition had had its effect from the very start in the existence of diarrhea of the lienteric variety, vomiting, colic, etc. In addition to bad hygienic conditions in these cases, it was frequently observed that the little patients suffered either with hereditary syphilis or malarial poisoning. Hereditary syphilis, by its dystrophic action, weakens the system even from fetal life, the effect being most noticeable upon the respiratory and digestive apparatuses. Bad hygienic conditions being added to these, the natural result in a short time must be the relaxation and dilatation of the gastro-intestinal tube. In malarial countries the poison acts with especial force upon the gastro-intestinal mucous membrane, this being the avenue by which a large portion of the germs enters the organism, especially when taken with the water which is imbibed. Their action is to set up a gastro-intestinal catarrh, which when continued during months or years results in the relaxation of the gastric-muscular tissue, from which dilatation follows. Bad alimentary hygiene will make this result a more certain one. The examination of young children effected with this trouble presents difficulties which are not encountered in the adult, and some of the customary diagnostic signs in the adult cannot be made available in children. A method which the author has found very useful, he calls the method of *plessimetric gastro-resonance*.

In practising it, he first gives the child thirty to sixty grains of a ten per cent. solution of tartaric acid, to which is added a solution of bicarbonate of soda, of equal strength and quantity. The mixture of these solutions disengages in the stomach a quantity of carbonic acid gas, which distends the organ. A stethoscope is then ap-

plied to the center of the epigastric region, and while the ear is applied to it, the index and middle fingers of the right hand are used to tap, with some sharpness, the epigastric region. The resonance which is thus produced, resembles the sound which is produced by a stroke upon a drum. It is only appreciable over the stomach, and hence enables one to mark out definitely the boundaries of that organ. It may also be added, that this condition of gastric dilatation was a frequent accompaniment of rachitis.

A. F. C.

Ripley: Case of Bullous Eruption in a Child. (*Journal of Cutaneous and Venereal Diseases*, Nov.)

A boy four years of age had a mild attack of measles, which was immediately succeeded by a sharp and persistent attack of urticaria. This lasted for over two weeks, and, as it was finally declining, circumscribed areas of violent dermatitis appeared successively on different parts of the body. The first patch, pear-shaped and about five inches long, appeared on the outer aspect of the right thigh. The epidermis was soon lifted by serous exudation, and a large bulla formed. Invasion of new areas speedily followed, each succeeding day developing new crops of bullæ, the disease showing at first a preference for the buttocks and lower extremities; later, the upper extremities, neck, face, and even the mucous membranes of the nose and mouth. The blebs varied much in size, and also in shape; some were nearly circular, and from the size of a ten cent piece to that of a trade dollar; others were ovoid, triangular, or rectangular, and several inches long. The dorsum of the right foot was completely covered with a single bleb. The disease lasted about two weeks, and for several days during its height the constitutional symptoms were alarming. The temperature rose to 104°F., and the stomach was exceedingly irritable. Hemorrhages occurred from the mouth, nose, rectum, and from beneath the finger and toe nails. Recovery was protracted but complete. The most satisfactory local application was dry bismuth.

Smith: Primary Nephritis in a Young Infant. (*Report of N. Y. Pathological Society in N. Y. Med. Record*, Nov. 14.)

A baby of six months, who had always been healthy, suddenly passed no urine in twenty-four hours. By one dose of sweet spirits of nitre the secretion was restored. Some days later, diarrhea occurred, and continued till the

close of life, but without vomiting. The stools were green, and numbered from four to eight daily. The infant had general convulsions, lasting about four minutes, the only one during the illness. The eclampsia was succeeded by well-marked nervous symptoms, such as strabismus, rolling the head, twitching of single muscles and groups of muscles, the uttering of a sharp, piercing cry at short intervals, and rolling the eyes. Death occurred at the age of seven months. The temperature, taken daily during the last month of her life, was usually between 100° and 103° . At the autopsy, the kidneys were much enlarged; that on the right side showed cortex thickened and pale, and the pyramids large and red; hemorrhagic spots in the upper part of this kidney, and the mucous membrane of its pelvis deeply injected. The left kidney was much congested, so that blood flowed from its incised surface, and the pyramids and cortex were of a uniform red color. The mucous membrane of the bladder was in a state of inflammation; urine retained in the bladder contained albumen in quantity nearly sufficient to solidify the specimen; hyaline, granular, and epithelial casts in great abundance; epithelial cells, red-blood corpuscles, crystals of triple phosphate, and cystine. It appears from the history that this patient had idiopathic nephritis, which gave rise to certain, if not all the symptoms and lesions observed in the case. This instance shows how important it is to examine the urine in the obscure diseases in children, for we may find the kidney affected when there are no pronounced symptoms referable to this organ. The frequent occurrence of nephritis in scarlatina and in diphtheria, and even in such febrile diseases as measles and parotiditis, is recognized, but the profession too much overlook nephritis in children occurring as an idiopathic or primary disease.

Jakuborvitsch (St. Petersburg): **Pseudo-Hypertrophy and Progressive Muscular Atrophy in Children.** (*Arch. f. Kinderh.*, B. vi., H. 4.)

The author has collected and tabulated the recorded instances of this somewhat rare disease, adding to the list two cases of his own. His investigations had reference to the microscopical changes in the muscles and their electric excitability, also to the peripheral temperature and metamorphoses, especially in so far as these can be determined by quantitative and qualitative analysis of the urine. His conclusions are:

1. In this disease the lessening in quantity of urea, uric acid, and creatinin means a lessening in the metamorphosis of albuminoids.

2. The lessening in the daily quantity of chloride of sodium which is passed, must mean a lessening in the extent of tissue changes.

3. The diminished quantity of creatinin shows that this is a secretion of the muscles.

4. The increased quantity of sulphides confirms Bence Jones's theory, that in diseases of the muscles there is an increase in the quantity of sulphur salts.

5. If Heller's theory is correct, that in old diseases of the spinal cord there is a diminished quantity of sulphides in the urine, then the increase in the quantity of sulphides in the urine in pseudo-hypertrophy of the muscles proves the insufficiency of the neuropathic theory of the nature of this disease.

6. The lowering of the surface temperature over certain affected muscles shows a diminished heat producing power in the muscular tissue.

7. The electrical excitability of the muscles is diminished in this disease.

8. Microscopical preparations show that pseudo-hypertrophy and progressive muscular atrophy are variations of the same process.

A. F. C.

Keegan : Litholopaxy in Male Children. (*Indian Medical Gazette*, June.)

The writer has performed the operation forty-two times in boys, with but one death. The largest stone was of three hundred and eight grains weight. He states that no larger instrument need be employed than will easily pass the urethra. The average stay in the hospital was less than a week. While after the operation of lithotomy, it was seventeen days. He claims that the operation should be extended to children in lieu of cutting operations.

Brown : Congenital Purpura in a New-born Child. (*Amer. Jour. of Obstetrics*, Oct.)

A case of congenital purpura is reported presenting several points of interest ; notably, that the child was born after a tedious labor, the placenta being small and somewhat degenerated ; that the hemorrhagic tendency developed immediately after birth ; that there was hemorrhage from stomach and bowels, and none from mouth

and nose; that there was no swelling of joints; that gangrene of the cord was present; and that the fatal hemorrhage took place from the line of separation of the cord from the umbilical ring. Death took place on the third day, and was preceded by convulsions.

Sexton: Two Cases of Neglected Ear Disease in Infants, Resulting in Death. (*N. Y. Journ.*, Oct. 10.)

Grave and even fatal ear disease in early life is of much more frequent occurrence, probably, than is generally suspected. Inflammation of the middle ear tract may thus arise from head catarrh or other cause, and rapidly extend itself to the dura mater without the warning usually given by the occurrence of a discharge from the external auditory canal. Or the discharge, once established, may suddenly cease because of the closure of the outlet through the drum-head, the secretions escaping *via* the Eustachian tube, which is proportionately very large in infancy. In the two cases reported, the first had otitis media purulenta, polypus, facial paralysis, and pachymeningitis, resulting in the death of an infant aged six months. The second case was a baby, aged seven months, who had otitis media purulenta, complicated with lymphadenoma of the neck, resulting in caries of the atrium, attic, antrum, tympanic, and auditory plates. Facial paralysis and purulent meningitis were followed by death. In Case I. little nervous irritability existed during the progress of the disease, although the ear was deeply attacked. With the exception of the last two or three weeks, the child suffered but little. To the retention of secretions, the formation of which was actively promoted by three weeks' persistent poulticing, and perhaps also to vigorous syringing, was doubtless largely due the gravity of the case. When the proportionately large area of the middle-ear tract in children is considered, one need not experience any surprise at the frequency of its invasion by disease. The tympanum, antrum, and Eustachian tube thus comprise a very much exposed region, which occupies a dangerous proximity to the dura mater,—being separated by an extremely thin plate of bone, often imperfectly closed by osseous tissue, especially along the line of the petro-squamosal suture.

3. SURGERY.

O'Dwyer: Intubation of the Larynx. (*N. Y. Med. Journ.*, Aug. 8th.)

For the past five years the doctor has been experimenting on intubation of the larynx, unaware of Bouchut's similar attempt and failure in 1858. The latter, however, limited his trial to seven cases of croup, and then gave it up, owing to Trousseau's unqualified condemnation. Many experiments have been made in connection with the length and size of the tubes and the best method of inserting and keeping them in position. One disadvantage of the tubes consists in the difficulty of swallowing when they are in position. The doctor has had made a set of tubes, the smallest of which is one inch and three-quarters, and the largest three inches in length. They are constructed in accordance with a large number of measurements of the trachea at different ages, and reach within half an inch or less of the bifurcation, thus overcoming obstruction in the trachea as well as the larynx. In order to give greater freedom of action to the epiglottis in protecting the aperture of the tube during the act of swallowing, the upper extremity is given a slight posterior curve, with some degree of obliquity from before backward and upward, and deglutition is thus rendered less difficult than with the straight tubes formerly used. As the epiglottis is only an accessory to the closure of the larynx, and the other more important factor, the action of its constriction muscles is prevented by the presence of the canula, it is evident that the deglutition of fluids can never be perfect with any form of tube in the glottis. The device adopted for preventing expulsion consists in increasing the narrow transverse diameter about the centre, without changing the caliber, so as to make the tube at this point almost cylindrical, and gradually inclining upward and downward, somewhat in the shape of a double wedge. The prediction is made, that in the near future tubing will be recognized by the profession as a legitimate and valuable method of overcoming obstructions in the upper air-passages with a rapidity by no other means obtainable. The tubes will also prove valuable as dilators in chronic stenosis of the larynx or trachea, and particularly in those cases following tracheotomy where it is found impossible to dispense with the tube.

No facts have been ascertained as to the length of time a tube can be worn without injury, but in two cases the

canula was kept in position for ten days without the slightest impairment of the vocal apparatus. The following is the method of introducing the tube, which is done without the use of an anesthetic. The child is held upright in the arms of a nurse, and the gag inserted in the left angle of the mouth, well back between the teeth, and opened widely; an assistant holds the head, thrown somewhat backward, while the operator inserts the index-finger of the left hand to elevate the epiglottis and direct the tube into the larynx. The handle of the introducing instrument is held close to the patient's chest in the beginning of the operation, and rapidly elevated as the cannula approaches the glottis. As soon as the obturator is removed, and it is ascertained with certainty that the tube is in the larynx, the thread which is attached for the purpose of removal, should it be found to have passed into the esophagus, is withdrawn, but at the same time the finger is kept in contact with the tube to prevent its being also withdrawn. Its removal is accomplished in a similar manner; but as it is difficult, on account of the struggling of the child, to guide the extracting instrument into the narrow aperture of the tube, it is best to give an anesthetic for this purpose.

Levi: Some Cases of Sclerema Neonatorum. (*Jahrb. f. Kinderh.* [from *Specimentale*, 1884, II., p. 338], Bd. xxiii., H. 1 and 2.)

Seven cases of this disease came under the author's observation at his clinic in Florence. They occurred only in weak and immature children, three of whom died, and four recovered. The treatment consisted of hot baths (to 40° C.), inunction with camphorated oil, massage, and envelopment in woolen coverings. In addition heat was applied by means of hot bottles, artificial respiration, nourishment by means of a spoon, or with a catheter introduced into the stomach, woman's or cow's milk being given and wine. The baths were efficient in exciting the sluggish circulation, and also in increasing the irritability of the nerves of the skin and the respiratory muscles. The temperature of the baths may even be raised to 45° or 50° C., without fear of doing harm. The author thinks with Parrot, Henoeh, and others, that sclerema, with its hardness of the surface, reduced body temperature, and slow circulation must be differentiated from the various forms of *edema neonatorum*. Its cause may lie in immaturity of condition at the time of birth, and the sudden

cooling of the body which may continue during hours or days. It is not a condition which is due to athrepsia as has been supposed by some authors. The frequent association of this condition with atelectasis of the lungs, the depression of the respiration and circulation, the low temperature of the body, the weakness of the voice in weeping and crying, the frequent complication with broncho-pneumonic processes all point to the opinion that sclerema is due to insufficient expansion of the lungs. And this opinion is shared by Bailly, West, Ritter, Legendre, and others.

A. F. C.

Busey, C. E.: A Case of Bronchial Cyst. (*N. Y. Med. Record*, Nov. 28th.)

A five-year-old boy was brought to the doctor to consult about a diffused fluctuating swelling, situated under his right lower jaw, which had been growing for six months, and when first noticed by his mother it was the size of an almond. As the child had always been perfectly healthy, and had never complained, his parents paid no attention to the enlargement until it reached its present size. The growth was about the size of an egg, situated under the right lower jaw. Free manipulation produced no pain or discomfort. Skin, mouth, and teeth, were found to be in good condition. No history of an injury. Family history good. Suspecting a congenital cyst, a hypodermic needle was introduced, and some straw-colored fluid withdrawn, which, upon microscopic examination, was found to contain epithelial cells. The introducing of the needle and withdrawal of fluid set up an active inflammation, which caused the tumor to decrease and disappear. For further particulars regarding this form of cyst, the doctor refers to an article published in the *Medical Record* of July 25th, by Dr. Henry Dwight Chapin, giving the history, treatment, and embryology of two cases.

Dreyfous: Dangers of Phenic Acid Dressings in Newly-born Infants. (*L'Union Méd. du Canada* [from *Abeille Méd.*], May.)

As the result of phenic acid dressing following the circumcision of two Jewish infants, symptoms of poisoning supervened, under the author's observation; he, therefore, considers that with such subjects such a dressing is contraindicated, absorption occurring very readily and giving rise to accidents of great gravity. The symptoms are the

same as those which have been observed in adults after the use of phenic acid in excess, either externally or internally, namely, dark urine, abundant perspiration, and hypothermia. In the two infants referred to there was also a generalized eruption which seemed to have some relation with the diaphoresis and with the elimination of the toxic agent. There was also a tendency to the formation of furuncles lasting several weeks after the poisoning occurred. These facts went to prove that the action of phenic acid is very harmful to the skin of newly-born infants, and that a furuncular or ecthymatous eruption may be considered an evidence of phenic acid poisoning.

A. F. C.

Bibliography.

A TREATISE ON THE DISEASES OF INFANCY AND CHILDHOOD.
By J. Lewis Smith, M.D. Sixth edition. Lea
Brothers & Co., Philadelphia, 1886.

In writing a review of a book which is so well known, and which now reaches its sixth edition, many difficulties at once arise before its reviewer. Should there be shortcomings—and what book has them not—the success and popularity would certainly be sufficient proof that the material was of unusual value. It is needless to say that the work before us is one that has stood all these tests, has been well weighed in the balance, and probably stands to-day as the best work on this subject.

It is written by an eminently practical teacher, one who is conservative, who is not carried away by theory, who has before him constantly, as he writes, the sick-room with the kaleidoscopic changes in the phases of disease, and the difficulties that encounter the young physician at the bedside of a child, when moments count for hours, and when good judgment, the offspring of knowledge begotten by education instead of experience, is the foundation upon which a human life depends.

In a text-book he wants a condensed, succinct account of the well digested opinions and experience of eminent practitioners, a separation of the chaff from the wheat, a judicial opinion, a legal standard, one sanctioned by the views of the majority. For such, consistency,

clearness of definitions, logical sequence, positive declarations, and definite instructions, are of more value than fulness of historical quotations, learned disquisitions, endless recommendations—the latter belong to the province of the essayists in the so-called “systems” now in vogue.

In the introductory chapter we find a most admirable article on infant mortality, weight, growth, lactation, quantity of food required, especially artificial feeding, which should be read by all. It is strange how ignorant the average practitioner is upon these matters. There is probably not one man out of ten recent graduates who, if suddenly questioned, could say how much milk a babe of six months requires in a day, or how strong to make its bottle of condensed milk—points of the utmost importance, and which are usually left to the mother or nurse, whose only guide is experimentation.

We may note one peculiarity of this book, and that is the space devoted to treatment of disease. As a rule, in text-books, this is passed over in haste, but Dr. Smith, in almost all cases, by careful pruning and revising, has given satisfactory attention to this matter.

The article on R \ddot{o} thlen is an exception to this rule, we regret to say. He says, “R \ddot{o} thlen requires no treatment.” This greatly depends upon the epidemic. We well remember in 1882–1883 in the wards of the Philadelphia Hospital, during which four cases of the 100 died of the disease. McFarlan reports a case in the *Canada Journal Medical Science*, 1882, page 205, which terminated fatally after an illness of four days, and during the same epidemic two other fatal cases occurred, one an adult.

The article on Scarlatina is particularly worthy of note, embracing as it does sixty-seven pages, it is both comprehensive and exhaustive, the treatment is handled in a very satisfactory manner both to the student and practitioner.

In the article on tuberculosis, we note the fact that the author claims entire allegiance to bacillus tuberculosis, stating that “the discovery of Koch has already proved of great importance as an aid in diagnosis, for the sputum of tubercular patients contains the bacillus. Tubercular sputum affords a soil in which the bacillus thrives and multiplies as it does in tissues of a tubercular patient, and by careful microscopic examination we are able to discover it in this sputum, while it is absent from non-tubercular sputum.”

Non-bacillary phthisis does not seem to have claimed the author’s attention to any great extent. ☞

Part Third.—This is devoted to the disease of the cerebro-spinal system, and is prepared with the greatest care and brought well up to date.

A curious case with illustrations is added to the article on facial paralysis.

Membraneous croup and tracheotomy receive careful attention, very clear and lucid directions are given for the performance of the operation and combating its complications, namely, pleuritis and pneumonitis, these are considered in a very acceptable manner.

In the chapters on diseases of the circulatory system and skin diseases, we find the most disappointing part of the book. One naturally would expect to find endocarditis at least here described, but it is relegated to the article on rheumatism where it is inadequately handled; again we find that pericarditis is alone treated under the article on scarlatina, and myocarditis does not seem to have been treated at all.

Cyanosis is extremely well handled, constituting an entire chapter, excluding cardiac hypertrophy and dilatation.

Hemic, functional or inorganic, murmurs are not considered, nor do we find any elaborate consideration of the subject of anemia in any of its various forms. We regret this, especially as the blood diseases of children and adults are demanding a great deal of attention and study at the present time, and so much valuable matter has been added to the elaborate articles of Osler and others of recent date, that we cannot but feel they should be included in the text-books.

On the whole, however, this book is perhaps the best manual on the subject of diseases of children before the practitioner of to-day. Its prescriptions are safe, its teaching is full, its doctrines sound, and if we find fault with it for not comprising all the diseases that infant flesh is heir to, do we not also have cause for complaint that the majority of text-books err on the other side and are too bulky and unwieldy!

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

APRIL, 1886.

[No. 4

Original Communications.

**SURGERY OF THE GENITO-URINARY ORGANS
IN CHILDHOOD.**

BY DE FOREST WILLARD, M.D.,

*Surgeon to the Presbyterian Hospital, Lecturer on Orthopedic Surgery,
University of Pennsylvania, etc.*

[CONTINUED FROM PAGE 75, FEBRUARY NUMBER.]

FOREIGN BODIES IN THE URETHRA.

Thoughtless children are frequently induced to pass into their urethral canals foreign substances of various shapes and sizes. The penis is peculiarly liable to manipulation, and a boy, perhaps dared to the act by the words of a companion, pushes in a pebble, or stick, or pipe-stem, when it suddenly slips from view. At once a series of movements are commenced which frequently ends in forcing the body backward to the membranous portion of the tube. The point of arrest will depend largely upon the shape of the mass. If of the full size of the tube, it may be caught in the fossa navicularis, as sometimes happens with cherry-stones or beads,

but if long and narrow, like a knitting needle, or hair-pin, or pencil, a much deeper region of the canal will be reached. Broken catheters are, of course, found with much less frequency in boys than in adults. A bristle or other narrow body may be caught in any of the lacunæ or in the orifices of the glands of Littre. A round body would more likely, by manipulation, be made to pass on to the posterior part of the pendulous portion, usually called the bulbous portion, and be there arrested by the narrowing membranous region. The more dense surroundings of the tube, as it passes between the two layers of the triangular ligament, render it the favorite point of fixation for long foreign bodies. Occasionally, however, they pass on, and if not caught in the sinus pocularis, or checked by the veru montanum, will enter the bladder.

The explanation of this reverse muscular action, which renders the "swallowing" of a foreign body a matter of positive occurrence, is a difficult one. The longitudinal and circular fibres of the urethra are intended to expel semen and urine, but under the stimulus of a substance applied from in front, an active wave of motor influence is easily perceptible, which has often carried a catheter bladderward when the surgeon has released his grasp. The theories of Civiale, Ségalas, Denucé, Mercier, and others all look to this muscular action as a cause, and it undoubtedly is the primary one. Then follows the secondary, namely, the manipulations of the patient, which tend to congest and temporarily erect the penis. Should the anterior extremity of the substance, which is ordinarily the pointed one, now become caught in the folds of the urethra, the subsidence of the erection and the consequent shortening of the tube would cause the posterior or free end to recede deeper into the canal, and this retrograde action would continue with each successive engorgement and emptying of the organ.

Several times I have seen sharp bodies, like sail-needles, grasped by the patient and pushed forward with sufficient energy to drive them through the substance of the glands, and yet they have receded and escaped from view.

In the case of idiots or feeble-minded boys, quite serious damage may occur during efforts to extract the offending body. Fortunately, as we are considering only the urethræ of children, we need not consider the immense variety of objects that have been introduced by insane persons, or by degraded beings for the purpose of arousing worn-out powers.¹ It is not uncommon, however, to find lewd nurses manipulating, and sometimes even passing these foreign bodies into the canals of male infants, or of larger boys entrusted to their care. Depraved boys may also follow the example set them by older companions, and inflict great damage upon themselves. In all cases above enumerated, the element of deception in regard to the nature of the body and of the accident by which it reached its abnormal position should be duly considered in diagnosing its location, etc. In young children no history may be obtainable, and the urinary difficulties may be already severe when the surgeon is called. To definitely fix the position of any such object requires at times the most careful external and internal manipulation. If situated in the prostatic portion of the tube, a small sound or catheter, or a long straight probe will serve best for exploration, while at any anterior portion, a finger in the rectum or applied externally will assist in determining the size, shape, and locality.

The feasibility of extraction will depend upon the three conditions mentioned, but in all manipulations for relief it should be borne in mind that far worse results will occur from a laceration or contusion that will cause subsequent abscess, than from a clean incision.

The first suggestion that would occur to any mind would be to dilate the canal in front, smooth out the mucous folds, and also exercise a *vis a tergo*, by instructing the patient to compress the meatus and make strong attempts at urination, thus expelling the urine by gushes.

Frequently this device is successful in dislodging and carrying forward the mass, especially if a finger be

¹ Ponlet, *Foreign Bodies*, pp. 97, 110.

judiciously employed externally in assisting the forward progress. Should this fail, or should there be no urine in the bladder, the urethra may be forcibly distended by injected oil or water. The largest possible bougie may be entered and permitted to be forced out in advance of the body by the pressure from the bladder. If tenesmus is present, a hot hip-bath will be of service, the act of urination as described being performed by the child while seated in the water.

External manipulation is the next method to be employed, and should be performed with great care, especially when the patient is anesthetized. If the body possesses irregularities or sharp edges, instrumental measures should have the preference. To successfully push forward a lodged body requires that the finger shall first be placed well in the rear of the object, while the tube is stretched so as to unfold the mucous plications. If a round body, it may now be made to advance slowly by pressure; if long and slender, without a sharp anterior portion, the urethra can be shortened by pressing the glans backward, but great care should be exercised that the deeper end be fully grasped and protected by the other hand, lest the whole mass slip back into the bladder. If a shawl-pin the point may be brought out through the skin, and carried back so as to make the head present anteriorly, when the latter can be pushed out of the meatus or be grasped by forceps. This method is safer than the uncertain one of catching even a small pin between the blades of a divulsor. The revolving forceps of Reliquet may sometimes, however, entirely guard the point. The sharp extremity may also be covered by carrying in a soft catheter, into which the pin may be fastened by pressure from behind, but reversal is usually safer as the opening made in the canal is very minute. A hair-pin is best secured by pinching the arms together and enclosing them in an open end catheter, or it may be reversed by bringing the points through the skin. A small pencil, or pipe-stem, or piece of catheter may also be caught by sliding a larger tube over it, and then

gently withdrawing it by making a slight angle between the two pieces.

Various long urethral forceps have been devised, the alligator, Mathieu's, Thompson's, Cusco's, Collin's, and Gross's being the most familiar forms. Their object is to grasp the body from in front, while it is prevented from receding by a finger in its rear. Any long forceps may answer in an emergency.

Round objects, as beans and beads, may be assisted by manipulation, or by inserting cautiously behind them a bent probe, or wire, or spoon, or scoop. The scoop of Leroy d'Etiolles or Nélaton, which can be slipped past the object while straight and then have its extremity bent to a right angle with the shaft, is excellent in theory and in practice. A lithotrite with very short jaws may also be used to grasp the object, and either crush or remove it. If the urethra can be entirely closed by pressure behind the body, Bigelow's evacuating bulb can be attached to a large open end catheter, and the power of suction brought into service as in litholapaxy.

I have already stated that laceration of the urethra was to be scrupulously avoided, and the injunction is again emphasized, since puncture or the buttonhole operation is seldom dangerous. In the case of a hair-pin above mentioned, should the reversed end be difficult of seizure after protrusion of the points, one arm should, by rotation, be pushed out as far as possible, and cut off smoothly at the curve, when by a reverse motion following the arc of a circle, the remainder can be withdrawn through the other opening.

If the foreign body be fixed in the urethra, if it be large or irregular in shape, and especially if in addition to these conditions we have it deeply located, an open incision will usually be necessary.

In the pendant portion of the tube a simple cut directly upon the object will suffice, the wound being stitched firmly together, rendered aseptic, and closed, the urine being drawn at stated intervals, or a catheter introduced and the water allowed constantly to flow away for a few

days. In the deeper portions of the tube a staff should be carried down to the point of obstruction, and the division made exactly in the median line, care being taken to make the incision in the tube large enough to admit of extraction without laceration. If the prostatic region is to be reached, a finger in the rectum will make the body more prominent and assist in expulsion.

The wound should be treated as indicated in the article on wounds of the urethra. But as children ordinarily give speedy notice of pain, there will usually be early removal and consequently slight perineal inflammation. For this reason a catheter *à demeure* is rarely necessary. From the same cause we seldom find encrusted formations in children's urethras.

There is another form of urethral foreign body which has a different origin, namely, *calculus*. This concretion may escape from the bladder and become lodged at any portion of the canal. The already suggested methods of seizure, extraction, crushing, or incision are applicable to such a stone.

Foreign bodies in the *female urethra* are uncommon in children, save in those abnormally degraded child prostitutes, who may in their ignorance and rashness be more bold than their older companions in self insertions into the vagina or urethra. Frequently these bodies pass into the bladder and will require dilatation of urethra and extraction by the forceps or lithotrite, either with or without crushing according to the size and nature of the object.

Foreign bodies in the vagina are found in young children as the result of falls upon sharp objects, and in older girls as above indicated, in which latter case we are not justified in treating of the injury as a disease of childhood. Special accounts of the hundreds of articles which have been introduced into this canal, either by individuals themselves or by drunken or vicious men, can be consulted.¹

Foreign bodies in the male child's *bladder* are not

¹ Parvin, Transac. Phila. County Med. Society, June 10, 1885, p. 341; and Poulet, Foreign Bodies, p. 187.

infrequent. Calculi are common and will be treated of under a special head. The various objects already enumerated as found in the urethra of boys are exceedingly liable to make their way into the bladder, and if neglected speedily become the basis of large incrustations.

Early removal should be the rule. The method of accomplishing this will depend largely upon the character and shape of the object. The lithotrite, together with Bigelow's Rapid Evacuator, gives the best results when fragmentation can be accomplished. It is of extreme importance that the last vestige should be removed or it will become the nucleus of a calculus. Frequent soundings should be practiced, and there is no better instrument than the sound of Thompson which has an exceedingly short beak that can be carried well down into the bottom of the bladder. The violent struggles of children usually necessitate the use of an anesthetic, cocaine in urethra and bladder failing to relieve the pain of the manipulations.

Pieces of broken catheters, pencils, sticks, etc., are hard to extract even when grasped, as it is difficult to seize them in the right axis. Many instruments have been devised to compel the foreign body to assume a position in line with the "redressor" or "basculeur," the object to be attained being attempted by beveled blades, or by mechanical rotation. Collins and Mathieus are perhaps the models of this class, but are applicable to only a limited number of cases and are seldom used. The same may be said of "duplicators" which are intended to fold or bend the object by means of a hooked male blade sliding within a female, after the plan of Mercier and others. Cutting litholabes are also limited in their use and are rarely used. In fact, the small lithotrite is about the only instrument adapted to children. Failing with it, lithotomy must be performed. The median incision is frequently made from the fact that the buttonhole operation is commenced when the body lies in the urethra, and after its escape into the bladder the incision is prolonged

through the prostate. If the object be very large, a lateral cut may even then be necessary to avoid laceration during extraction. The lithotrite is also of advantage as a crusher even after the external wound has been made, or it may be employed for grasping the body and raising it to the fundus, where it can easily be reached by a suprapubic cut. When the body is known to be large, the high incision offers undoubted advantages, and many surgeons now advocate its performance. The procedure is not unattended with danger, but in children is rarely fatal. In deciding the question of lithotomy or extraction *per viam naturalem*, the dangers of laceration should not be overlooked.

CONGENITAL DEFECTS OF THE PENIS.

Short Frenum.—When the curve of the penis is so greatly altered during erection that the meatus is turned directly downward, and if the corpus spongiosum is not too short, it will be sufficient to free the fold and permit it to slide back and form a new attachment.

If the *spongy body be shortened*, then the curve during erection will be exaggerated, and intromission in later life would be impossible. Such a condition is usually associated with hypospadias or some other deformity of the urethra. Not infrequently the corpus spongiosum ends before it reaches the glans, and the length of the dorsum is at least one-third greater than that of the under surface. The preputial hood in these cases is redundant above but deficient beneath, thus giving a clubbed appearance to the organ. The glans in all these cases should be thoroughly liberated from the prepuce as soon as the difficulty is discovered so as to permit the freest possible expansion. At any age after three months a plastic operation should be attempted to release the contracted portion. A small gum catheter of the extreme dimension of the canal should be introduced to mark its outline. Each restraining band of tissue should then be divided, and after thorough stretching, if gaps of raw

surface exist, they can be covered in by small flaps of skin slid in from the sides of the penis, so that granulation and cicatricial contraction shall take place laterally and not at the under surface. Great caution is necessary not to perforate or lacerate the urethra, as that would only add further to the difficulty. In extreme cases in larger boys, the severance of the tube, and the construction of the intervening missing portion by the methods which will be described for the relief of hypospadias, may be attempted. The cutting away of a wedged-shaped portion of the dorsum would probably not be submitted to until the necessity for legitimate use of the organ for procreation in adult life was reached.

Sometimes the penis is almost concealed within the fatty tissues of the pubes. A moments manipulation will usually cause sufficient rigidity to indicate the presence of the member. An incision can then be made to permit its extrusion, the cut edges of the skin being stitched above at the base of the dorsum, and lateral flaps brought in to cover the denuded corpora cavernosa; daily stretching should then be performed to gain the fullest development possible.

(TO BE CONTINUED.)

BRIEF NOTES ON FIVE CASES OF ERYSIPELAS IN THE INFANT, WITH A PLEA FOR THE USE OF WHITE ZINC PAINT IN LOCAL TREAT- MENT.

BY A. D. BLACKADER, B.A., M.D., M.R.C.S., ENG.,

*Lecturer on Diseases of Children McGill University, Assistant Physician
Montreal General Hospital.*

Since the beginning of the year 1882, it has been my fortune to have had five cases of well-marked erysipelas in the infant. For easier reference I group the first three together as follows:

Age and Date.	Condition.	Origin.	Attendant Symptoms.	Extent.	Local Dressing.	Internal Remedies.	Duration.
J. B., æt. 11 mos. April, 1882.	Weaned, irregularly fed, two in- cisors cut.	Eczema of ear.	Diarrhea; great rest- lessness; max. temp. noticed 103.8°.	Scalp, neck, right arm, chest.	Carbolic oil.	Bismuth, am. carb., cinchona, brandy.	22 days.
W. H., æt. 13 mos. March, 1884.	Nursed and fed, six in- cisors cut.	Abrasion right groin.	Vomiting; max. temp. 103.2°.	Both ex- tremities, scrotum, penis, abdomen.	Warm lead lotions.	Tr. ferri ℥. v. q. 4 h.	16 days.
J. H., æt. 4 mos. March, 1885.	Nursing.	Vaccination.	Slight diarrhea, max. temp. 104.2°.	Left arm, shoulder, chest; two abscesses in forearm.	Warm lead lotions.	Mixt. Sa- line, qui- nine; after- wards tinct. Ferri cit.	5 weeks.

My other two cases having occurred recently I give the report of them more fully.

CASE IV.—A. H., æt. five months, nursing and fairly nourished, though mother anemic and her secretion of milk apparently scanty; illness commenced suddenly with urgent vomiting, little retained on stomach; stools loose, greenish, offensive, increased in frequency. First visited on

morning of day following (Nov. 25), when above symptoms continued about the same. Temperature 102.6° , pulse 148. Spreading from a small abrasion on left inner malleolus, was seen a marked erysipelatous blush. It extended over a space about one and one-half inches in diameter. As the mother for past few days had been supplementing her milk with a sop of bread and milk, a powder was ordered containing rhubarb, soda, and gray powder to be given at once, and followed in twelve hours time by a mixture containing tr. ferri mur. $\mathfrak{m}\text{iij}$., pot. citratis gr. iss.; glycerine \mathfrak{m} x., aq. ad. $\mathfrak{z}\text{j}$., to be given every four hours. Warm lead and opium fermentations; covered with oiled silk were ordered locally. Minute instructions being given as to their mode of application. Mother ordered to drink gruel and milk freely.

November 26.—Rash much extended principally upwards, now a little above the knee. Vomiting still continued, both food and medicine rejected; bowels moved twice, apparently from powder, not since; child very restless, temperature 103.6° , pulse 160. Ice water from a teaspoon to be given frequently. Mixture in half doses every two hours.

November 27.—Rash with much edema, extends over thigh nearly as high as groin, and back on gluteal region; great restlessness, food has been retained better along with greater part of medicine; temperature 103.8° , pulse 168. White zinc paint (the contents of a tube of Winsor and Hudturs white zinc mixed with pale boiled oil), was painted over all the limb including the gluteal and scrotal regions, and allowed to dry. When almost dry a light layer of cotton wool was placed around it, and secured by bandage to prevent it being rubbed off till thoroughly dry. Medicine in full dose every three hours.

November 28.—Child much better, temperature 100° , pulse 144. Much quieter during the night, sleeping two and three hours at a time, no vomiting, bowels moved, consistence natural. On examining the limb a light pink blush found extending over perineum beyond the coating of zinc. This was painted and the whole limb

done afresh, as the coating looked thin in places. The cotton wool reapplied except over genitals which the mother was directed to wash with tepid water after each time of soiling; dry carefully and repaint.

November 29.—Temperature 99°, pulse 132; edema apparently subsided over entire limb, child sleeping and nursing well.

December 5.—Paint removed to-day with soap and warm water; appearance of skin normal; child well but anemic. *Ol. morrhue ē*, *Vin ferri cit.*, ordered to be taken for a fortnight twice a day after food.

CASE V.—James Moffatt, *æt.* seven months, nursed for three months, afterwards bottle fed. Visited first, December 15; a marked erysipelatous blush was found extending from a little above right knee to groins. Mother had noticed the rash two days ago extending from a deep scratch, but had done nothing for it. The child was very restless, had vomited several times the previous day, but not since; bowels moved ten times past twenty-four hours; stools green, sour, containing curds; temperature 102.8°, pulse 150; ordered *tr. ferri mur. gr. v.*, every third hour. The surroundings in this case were bad, the room was very dirty, and the parents were below the average in intelligence.

December 16.—Medicine had been given and retained in stomach, child very restless all night, mother said it had not slept half an hour; temperature 103.2°, pulse 156; rash extended above groin about an inch and back over gluteal regions; scrotum not yet involved. Paint applied over whole limb, and an inch beyond margin of blush. Some cotton wool placed over it as before, with instructions to mother to remove it as soon as soiled, and if necessary repaint; medicine to be continued.

December 17.—Child slept well, no extension of rash noticeable; temperature 100.5°, pulse 145.

December 18.—Temperature 99.4°, pulse 120; repainted.

December 20.—Temperature 98.2°, pulse 120. Child apparently well as before, paint to be washed off in two days; directions for proper feeding given, and *ol. murrhue* ordered.

Of the first three cases very little is to be said. They ran a somewhat protracted course, involved a good deal of attendance on my part, and quite wore out their several nurses by the long continued and extreme restlessness at night; of the last two by themselves little can with certainty be predicted. All regard erysipelas as a constitutional disease, for that reason I do not desire to underestimate the value of constitutional remedies and would always advise them to be used. It may be still a matter of dispute, however, how far the systemic and the local symptoms are mutually dependent on one another, and in the infant especially may we suppose that pain and local inflammation, irrespective of blood poisoning, may go a long ways towards producing systemic disturbances. One of the principal points insisted on by Mr. Barwell, when directing attention afresh to the value of white lead as a local application in erysipelas, was the immediate relief to the pain it afforded. In all his cases a rapid fall in the pyrexia with arrest of the disease also followed. The local result he attributed entirely to the complete exclusion of the air; in this he is sustained by analogy. It would appear reasonable that if we can thus moderate and assuage the local inflammation, we, at the same time, have a controlling influence over at least some of the factors in the systemic disorder.

For this reason I desire to put in a plea for this form of local treatment in opposition to the more expectant plan recommended by recent authorities. Especially has it advantages when the erysipelas occurs in the infant, when all ordinary dressings are either disturbing in their application, readily soiled by the excretions, difficult to be maintained in proper position on account of the child's restlessness, or very heating when any extent of surface is covered. The possibility of absorption of the lead in the infant deterred me from using it at first; Mr. Barwell's assurance to the contrary, notwithstanding. In white zinc, however, we have nothing to fear; it is applied easily when mixed with pale boiled oil, it dries quickly, forming a complete dressing, it is not soiled by

the excretions, nor easily rubbed off however restless the child may be. If any one desires to render it antiseptic, it can easily be made so by the addition of carbolic acid, naphthalin, or eucalyptol. It can easily be removed by soap and warm water at any time if so desired.

INFANT FEEDING.¹

BY E. F. BRUSH, M.D., MOUNT VERNON, N. Y.

Without endeavoring to impress on you any opinions of the necessity of mothers nursing their children, or of the advisability or danger of employing wet-nurses, I shall endeavor in this paper to point out some simple methods of feeding an infant when it is deprived of the breast. I promise you that I will not attempt to be very scientific, because I believe that much harm is occurring from the intensely scientific features of baby feeding to-day. Peptones, indeed, are only second in prominence to bacteria. Probably there is no greater satire on the medical profession at present than the number of patent medicines offered for infant feeding. It would seem that any one, outside of the profession, can compound a mixture for baby feeding, and through the efforts of the medical profession itself can create a large sale. How many of us know anything certain of the actual composition of the patent foods we are continually recommending? Certainly great men have tried their skill in compounding a universal infant diet. We all remember the *éclat* with which "Liebig's Food for Infants" was received by a trusting medical world. Although some foods styled "Liebig's" are still advertised, nevertheless "Liebig's food" is out of use; and we ask why? Simply because it was altogether too scientific. It was a chemical compound not a food. Dr. King Chambers said publicly after a fair trial, "Laputa never devised anything more preposterous than Liebig's

¹ Read at the last meeting of the Medical Society of New York.

Food for Infants." Now let us examine this once famous food, and we shall at the same time understand why some of the more recent chemical compounds are not fulfilling their promise. Liebig's food was composed of milk, wheat-flour, malt, bi-carbonate of potassa, and water. On going over this list of ingredients, *seriatim*, we conclude that the trouble did not come from the milk; the wheat flour possibly could create a disturbance, but this is modified in the preparation by the malt, and the malt itself could not possibly be the offending agent. But when we come to the bi-carbonate of potassa we hesitate. It is only recently that we have been so ably warned against the free use of alkalies before this very society. Professor Jacobi in telling us of the very great danger we incur in the use of chlorate of potassa; said also "we are not very careful in the doses of alkalies in general." A new and popular food for infants has lately appeared containing, instead of the bi-carbonate of potassa, exactly the same proportion of the bi-carbonate of soda. An ordinary infant needs three pints of food or more daily. Who would think of giving an infant forty-five grains or more of either of the salt of potassa or soda? Professor Alfred Stillé, in a lecture on "Acute Rheumatism," advises the use of bi-carbonate of soda in doses of less than six grains every three or four hours for an adult; and says, regarding it, "The alkaline treatment relieves the pain and saves the heart by *lessening the amount of fibre in the blood.*" Now, if doses of less than six grains have this effect on the adult, what shall we expect to be the effect of much larger doses administered to an infant? There is no doubt that with strong alkali the process of nutrition is reversed—that is, the nutritive material is dissolved out of the economy. The so-called peptonized milk, recommended by Dr. Roberts, of England, and made popular in this country by advertising and medical testimonials, is likewise a chemical compound, and I think can be classified as an albuminate of soda. Dr. Roberts, in his very readable little monograph recommending the food, cites some experiments he made with

kittens, two of which he fed on natural milk and two on peptonized milk. Of those fed on the peptonized milk, one shows an absolute loss of twelve grains in two days, while those fed on natural milk showed a steady gain; at the end of ten days these two had gained ninety-five grains, while the two fed on the peptonized milk gained but forty-seven grains. There is very little doubt that if he had examined the blood of the very badly-nourished kittens he would have found it less coagulable than that of the naturally fed felines.

I mention the chemical foods, not because they are the only ones in vogue, but because I regard them as the most dangerous, and I wish to protest against the tendency to take infant feeding into science too deeply, and again using the words of Professor Jacobi, "to give at least one of the million instances in which the individual judgment is biased and medical progress is liable to be thwarted by enthusiasm not complicated with reason."

It does seem to me, gentlemen, that a physician ought to be able, out of the multitude of simple articles within reach, to prepare for the infant a suitable food to meet the requirements of any or every case. One of the greatest elements of failure in the artificial feeding of infants is the desire to give *one* variety of food under all circumstances. When you fail with a food that you have yourself prepared, then you have, at least, a knowledge as to what your failure arises from. But when you fail with a food, with the composition of which you are not acquainted, then you are lost indeed. It is then with the hope that I can get some appropriate article of diet which you yourselves can teach the mother or nurse to prepare, that I essay to read this paper.

First, we will take the child at birth. After twelve or or twenty-four hours, I give the following as the best substitute for colostrum: The white of one fresh egg, two teaspoonfuls of granulated sugar, two teaspoonfuls of sweet oil, a pinch of salt, and one pint of water. Beat together in a saucer, the albumen, sugar, oil, and salt, with

a fork as in making a salad-dressing. When they are thoroughly beaten together, drop in slowly from a spoon, meanwhile continuing the beating, five teaspoonfuls of cold water. Then pour the mixture into a pint bottle and shake it well. This mixture should be given from a nursing bottle, warm; it should be warmed carefully, as too much heat coagulates the albumen. The child is fed on this for three or four days; then I begin adding to each meal a teaspoonful of milk, and increasing the amount of cow's milk until the mixture is half and half. Then I substitute whatever diluent I decide to be necessary in the case. Now, this is very simple, and washes out the digestive track. If for any reason, the cathartic effect is not decided enough, more sugar can be added, and likewise more oil if necessary. Now, on the other hand, if the cathartic action is too brisk, the addition of cow's milk will lessen the effect.

We are now through with the colostrum period, and are confronted with the question, What is the best staple food? Without hesitation I answer "Cow's milk." I am, however, appalled at the task of telling all the conditions that render it unfit, poisonous, cathartic, constipating, ill-nutritious, too nutritious, and likewise the very best food for the artificial feeding of infants. As long ago as 1879, I made a classification of milks, separating the product of the cud-chewers from that of the non-cud-chewers. As this simple classification enables us to clearly understand some of the difficulties the human young experience in digesting milk designed by nature for bovine young, I will allude to it here but briefly. The milk of all the non-cud-chewers, to which class belong the human, equine, canine, and others, contains a variety of caseine which is precipitated in fine flakes, thus allowing the digestive juices to attack it more readily. Now, the other class is that of the cud-chewers, which includes the bovine, ovine, and hircine and others. The latter all chew the cud soon after birth; therefore, the milk designed for their use contains a variety of caseine which coagulates into a mass, sufficiently hard and consistent to be regurgitated and

chewed. Therefore, when an infant fed on cow's milk vomits a hard, leathery curd, the indications are that the milk must either be prevented from coagulating, or coagulated and subdivided before entering the stomach. Now, when the rejected matter has a distinctly sour smell, it is undoubtedly due to the souring of the milk, and the amount of any alkali necessary to overcome this tendency would simply be too great. What I am in the habit of giving in these cases is milk with some of the caseine removed and the remainder broken up. This I do with the pepsine mixture, made as follows:

Pepsine (Hawley's), 5j ;
Acid, hydrochloric, C.P., 5j ;
Glycerin, 5j ;
Water, 5j.

One teaspoonful of the foregoing mixture will precipitate the caseine for one pint of cow's milk. The whey resulting from this precipitated milk I mix with whole milk, half and half, and heat until coagulation takes place. Then I beat the curd up into fine flakes. Now, on the other hand if the curd rejected from the child's stomach has not a distinctly sour smell, we can infer that the caseine coagulates before the digestive juices can act. In this class of cases, the addition of lime water to the food will often overcome the difficulty by making the milk just sufficiently alkaline to allow the digestive process to start before coagulation commences. With this agent the amount of alkali necessary is very small. The following is the mixture which I have found the best: lime water, two tablespoonfuls ; water, four tablespoonfuls ; and milk, six tablespoonfuls. Here we have less than one grain of lime, which is preferable to any of the other alkaline salts, and there is no other alkali which requires so small a quantity to do the work, and which does not keep the stomach in an alkaline condition sufficient to interfere with the digestive functions. Very often in these cases of vomiting hard curds, the stools are very acid and of a vivid green

color. This acid condition of the intestines is very often caused by the administration of an alkali, because when the stomach is acid the intestines are alkaline, as they should be; but when you make the stomach alkaline, as is too commonly done by the physician, then the intestines become acid. Usually it will be necessary to continue the use of the lime water for some time, but the precipitated caseine mixture need only be used for a few days. Now, on the other hand, when a child is being fed on cow's milk properly diluted and sweetened, and has an acute attack of diarrhea, the indications are to stop the milk immediately. There are many conditions of the cow that render her milk totally unfit for food. The first are her own physical infirmities. I have found that when a cow takes the bull the milk is intensely acid, and will cause a colicky diarrhea in the infant that takes the milk at this time. Then when the cow becomes pregnant the nutritive value of the milk is diminished, and, furthermore, some food the cow takes affects the milk perniciously. Calves have been known to die sucking mothers who have eaten buttercups. I mention this plant because it is the most common. The cow is a voracious animal, and when she can get nothing better will eat all kinds of poisonous weeds, and this with impunity when she is giving milk. The same herbage which would and does kill animals that are not in milk is eliminated by the milk-giver to kill the one who consumes the milk. Then again the brutal usage to which a cow is sometimes subjected, like the severe mental shock which often renders the human mother's milk poisonous, also affects the milk of the cow. I have recorded several instances of violent diarrhea occurring in infants fed on milk from cows subjected to cruel treatment. When milk is stopped in acute diarrhea, the food I use with good results is raw oat-meal water. The oat-meal water is prepared with one teacupful of oat meal in one pint of cold water; let it stand fifteen minutes with an occasional stirring, and when the meal has settled pour off only the clear water, and give this cold, *ab libitum*,

either from a nursing bottle or a drinking vessel. The directions seem simple enough, but when I tell you in my experience not one mother or nurse out of ten will follow the directions, you will understand why I tell you to get this food prepared properly; you will be obliged to do it yourself the first time, and perhaps again and again. I do not know that this is to be much wondered at, for it does not seem to the casual observer to be a very nutritious looking fluid. But I have kept infants for several days on raw oat-meal water without apparent loss of weight. In many cases of acute diarrhea all the treatment you will find necessary will be the substitution of this raw oat-meal water for the milk they had been taking. Now as much depends on the proper preparation of this meal water, let me impress on you again the absolute necessity of your preparing the first portion yourself, and of seeing that the oat meal is good. Some of the oat meals in the market are prepared from damaged oats, which are partially cooked. When you attempt to prepare a raw oat-meal water from such a variety of meal, you will get too much starch in solution, and as a consequence the diarrhea will be aggravated. Oat meal—the Ohio meal—is the best. I have never made a complete analysis of this oat-meal water, but I have determined the amount of fat in a given quantity; also the amount of solid matter held in solution, and demonstrated the presence of sugar. Therefore, you see we have something like milk in composition, fat, sugar, and nitrogenous elements. In one ounce of raw oat-meal water I found four and a half grains of solid matter. I extracted three-quarters of a grain of fat. Usually the child with acute diarrhea is feverish, and will drink a large quantity; but it is easy to compute how much solid material they are getting. Notwithstanding all the scientific data that a child needs more food in proportion than an adult, it is surprising how little they will get along with if that little is appropriate. This appears, likewise, to be the case of the young of other species. I have raised a calf on hay-tea from birth, and in a good, well-nourished condition.

Now, as I said before, it is always well to get the child back on its ordinary milk diet as soon as possible. Always boil the milk for the first two or three days when resuming it, after diarrhea, and it is a safe proceeding to change the milk-man about this time.

It may not be out of place, right here, to tell you the kind of a cow best adapted to supply milk to an infant, and how the cow should be cared for to produce the best variety of milk. In the selections I exclude the Alderney and her cousins the Jersey, and Guernsey. In the first place they are exceedingly nervous, and there is little doubt that they are more prone to tuberculosis than any other breed, owing to the close breeding. Next, their milk contains the fat in a very poorly emulsified condition, which accounts for their good butter qualities. The fat exists almost entirely as free fat, and very little, if any, is combined with the albuminoids. The best cow to supply milk for infant feeding is the common-grade cow. In my experience the big red breed is the most quiet and gentle in disposition, a good feeder, and not excitable even in heat. She should be stall-fed at all seasons when supplying milk for an infant. Her fodder should be fresh hay the first thing in the morning, after milking give her a breakfast of cut hay wetted and mixed with one pint of cornmeal, two quarts of bran, one pint of oil meal, one ounce of bone meal, one ounce of salt. She then should be curried and turned out for exercise into a yard where there is abundance of clean water. At noon she should have half a bushel of cut-roots, either carrots, mangel-wurzel, or ruta-bagas. After milking in the evening give her the same allowance that was given at breakfast.

As I have been recommending stall-feeding the question naturally occurs, why is not the milk rendered poisonous by the weeds in the hay as well as in the pasture? This question at first staggered me, but when we come to know that almost invariably they owe their poisonous properties to a volatile principle which becomes inert by drying, the difference is understood at once.

When we rely on the milk-man for a supply never take

one cow's milk, for it never is uniform, while that of a large dairy will be uniformly good or bad.

All the difficulties with insufficiently fed children are not included in vomiting and diarrhea. We also have obstinate constipation to deal with. In these cases I use raw malt water as a dilutent for the milk. Get whole-malted barley; in cities it is readily obtainable at the breweries; grind it in a coffee mill, soak half a pound in a pint of cold water for several hours and strain, dilute one-half with milk. In cases of badly nourished children, who have but one movement in three or four days, and then the feces consist of a large white mass with a very bad odor, the malt water, in my hands, has usually regulated the bowels, giving a good soft yellow fecal discharge daily. In this same class of cases if the bowels become too loose, boil the half pound of ground malt with the pint of water for fifteen minutes and strain, dilute with it the milk in the same proportion, half and half. When malt water is being used, the milk requires no other sweetening.

In acute dysenteries occurring in artificially-fed infants, I have used the raw-beef solution, and have found in many cases when children have been doing well on this, that the administration of even one additional meal of milk would aggravate the dysenteric symptoms. In this disease I am not talking from a very large experience, but I went through one very severe epidemic, and the experience gained at that time has been confirmed by my observations in sporadic cases since that time. I prepare the raw-beef solution as follows: one pound of lean beef, cut very fine, place in a quart fruit jar, then mix one pint each of boiling water and cold water; after they are mixed pour them on the beef; with a fork whip the beef up in the jar for fifteen or twenty minutes, or until the meat is all washed out, leaving it white; this allows the beef to settle, then pour off the clear solution; this should always be fed warm. My experience is that cold drinks are always bad for infants with dysentery. Sometimes I use this beef solution as a change of diet in other condi-

tions, in which cases I add a little salt, or sometimes lemon juice, and administer it ice-cold in febrile conditions. But in dysenteries I make on addition whatever and always administer it warm.

Food and drink are synonymous terms to infant feeding; therefore the food should always be largely diluted. The kinds of food found in common use are often more correct than the methods of their preparation or administration. Usually each food substance carries with it a digestive ferment. Bread made with baking powder should not be used as food for children; such bread contains chemical substances which are not wholesome. It must be remembered that food that spoils quickly digests quickly; but it must also be borne in mind that in infant feeding the digestive process should precede the spoiling process. This is not of so much importance with the adult where there is a stronger gastric juice to check the spoiling process. Therefore all preserved foods have their nutritive value lowered in proportion as their keeping qualities are increased. Lethely's tables of nutritive equivalents place human milk at 100, and Herrings at 914. The difference in digestive capacity is more than compensated by the difference in nutritive value.

With the short space of time allowed at such an important meeting as the present, I have made my remarks brief and pointed. If, however, I have succeeded in rescuing the infant from the multitude of fictitious commercial compounds, and saving it for a more natural, simple, and appropriate diet, I have not wasted your time, nor yet my own.

AN ABSTRACT OF A PAPER ON INTUBATION OF THE LARYNX.¹

BY F. E. WAXHAM, M.D.,

Professor of Diseases of Children, College of Physicians and Surgeons, Chicago.

The author, after paying just tribute to Dr. O'Dwyer, of New York, for his noble work in so perfecting and

¹ Read before the Chicago Gynecological Society.

modifying the instruments for tubing the larynx as to make this not only a practical, but a most successful procedure, referred to the various advantages of intubation over tracheotomy.

1st. No opposition is met with on the part of parents and friends; quite a contrast to the difficulty with which we usually meet in obtaining the consent to tracheotomy.

2d. It relieves the urgent dyspnea as promptly and effectually as tracheotomy, and if the child dies there is no regret that the operation was performed, and no discredit attached to the physician.

3d. There is less irritation from the laryngeal tube than from the tracheal canula. As the tube is considerably smaller than the trachea it does not press firmly at any portion, excepting at the chink of the glottis.

4th. Expectoration occurs more readily than through the tracheal tube.

5th. As the tube terminates in the throat, the air that enters the lungs is warm and moist from its course through the upper air passages, and consequently there is less danger of pneumonia from this source.

6th. It is a bloodless operation.

7th. It is more quickly performed and with less danger.

8th. There is no open wound to close by slow granulation, and convalescence is more rapid.

9th. There is no wound that may be the source of constitutional infection.

10th. The patient does not require the unremitting care of the physician as in tracheotomy.

11th. It is a more successful method of treating croup, either diphtheritic or membranous, than tracheotomy.

The only objections to the operation mentioned were the difficulty of introducing and of extracting the tubes. These objections can be overcome by sufficient practice upon the cadaver. While the inexperienced will have great difficulty in entering the larynx, and will almost invariably pass into the esophagus, yet the expert ordinarily should be given but one chance, and ten seconds in which to place the tube.

The operation of removing the tube was mentioned as even more difficult than its introduction, requiring more skill and caution. The author, however, had met with difficulty in only three cases. In one, the tube, which was one of the primitive ones with small head, slipped into the trachea. Ether was given the child, and the tube extracted at the first attempt. In another case the child was but twenty months old, and the head of the tube was held so closely to the vocal cords that removal was difficult. Three careful attempts were made, when not being successful ether was given and the tube extracted without trouble. In still another case the child was so nearly dead that no gagging occurred, and the head consequently did not rise above the vocal cords, and removal was difficult, although accomplished without ether. These objections, although serious, and objections that would necessarily confine the operation to the hands of the most expert, were the only ones met with in an experience with seventeen cases.

In regard to the comparative value of tracheotomy and intubation, the writer stated that as yet we had not sufficient data, but that the outlook for the new operation was most encouraging. Seventeen cases were then reported, with eight complete and perfect recoveries. The ages varied from sixteen months to five years. Seven cases were three years or under, and eight were diphtheritic; two conditions under which tracheotomy is rarely successful. The ages of the successful cases were five years, twenty months, two years and two months, five years, five years, three years, four years, and four years and nine months, respectively. All were in imminent danger of suffocation, and in five cases tracheotomy had been proposed, but permission refused. The writer considered this a grand record for the new operation, and alluded to two questions that would naturally arise in the minds of the skeptical. First, were these cases as serious as represented; and, second, might they not have recovered without an operation. As an answer to these queries it was stated that in every case muco-pus and shreds of false

membrane were rejected, proving that they were all cases of diphtheritic or membranous croup; and, second, all with two or three exceptions were seen by other physicians, who invariably predicted a fatal termination unless relieved by surgical measures. Of the successful cases, patient No. IV. was attended by Dr. Behrend, who was convinced, as well as the writer, and expressed himself certain, that the child must soon have died without surgical aid. The patient was subsequently seen by Dr. H. T. Byford.

Case VI. was seen in consultation with Drs. Dahlberg and Appleby. Both physicians were positive that the danger was imminent, and that the patient could live but a few hours. Dr. Helm also witnessed the operation, and can testify to the critical condition of the patient.

Case VIII. was seen with Dr. Kossakowski, who expressed the opinion that the only hope was in an operation. The patient was also seen by Dr. Sullivan on one occasion, when it became necessary to reintroduce the tube, and on still another similar occasion by Dr. D. S. Clark, of Rockford.

Case XI. was called a positively hopeless one by Dr. Valin.

Case XII. was pronounced utterly hopeless by both Dr. C. E. Caldwell and Dr. Ogden.

Case XIV. was in a most critical condition, and Professor Quine stated that, "any rational physician would positively have said that the child could not have lived longer than two or three hours."

The author regretted very much that in Case XV. he had no corroborative evidence of the patient's great danger, but he was fully convinced that there was not the least hope of recovery.

Case XVII. was pronounced hopeless by Professor Quine and Dr. Willard.

The condition of the unsuccessful cases was not referred to in particular, as the writer thought there would be no question in regard to the danger and the necessity for surgical interference. Dr. Waxham referred

to the statistics of Herr Ranke, of Munich, as the most brilliant record of tracheotomy, showing a trifle over one-half the cases as terminating favorably. When considered in the proper light these statistics, he thought, did not seem so wonderful. Herr Ranke advises the early operation "as soon as the vocal and respiratory symptoms of laryngeal invasion become manifest," and admits that he has operated upon some cases that would have recovered without it. It must be remembered that, by the most prompt and judicious treatment, we can save one-third of our cases, even if tracheotomy is abandoned. We may then consider that Herr Ranke, in operating early, operates upon one-third of his cases unnecessarily. Subtracting one-third the number unnecessarily operated upon from one-half the total number saved, and the result, one-sixth, represents the *true* proportion saved, a record that corresponds more nearly with our own experience with tracheotomy. Again by operating early we will operate upon many cases of severe spasmodic laryngitis. Often it is only by watching a case closely, from day to day, that we are able to make a positive diagnosis. By operating upon these cases we will save every one of them ; but ninety-nine out of every hundred would recover without it. It is an interesting, but suspicious fact, that our most brilliant tracheotomists advocate the early operation.

The author then gave a minute history of the seventeen cases upon whom he had performed intubation. Of these cases, patients Nos. VI., VIII., XI., and XIV. were the most interesting.

CASE VI. was seen with Drs. Dahlberg, Appleby, and Helm. The little patient was but twenty months old, and in the greatest danger of suffocation. The features pale and anxious, and covered with perspiration ; respiration, stertorous, with deep sinking in of the tissues at the base of the thorax ; pulse rapid and feeble, and the strength rapidly failing. Intubation was quickly performed, without the least difficulty, and requiring but a few seconds. After coughing and rejecting

considerable quantities of muco-pus and shreds of false membrane, all the alarming symptoms subsided and the little patient passed into a quiet, natural sleep. The little patient was given liberal quantities of milk, which always provoked coughing, and enemata of brandy and milk. On the fourth day the tube was extracted. The child did very well for two days, when gradually returning dyspnea indicated a reformation of membrane. On the third day after the removal of the tube, the respiration became so embarrassed, and the condition of the child so critical, that it was necessary to reintroduce the tube. False membrane was again rejected, and soon all alarming symptoms again subsided. On the ninth day the tube was again removed. The voice remained hoarse for two or three weeks, but gradually returned to its normal condition, and the child made a perfect recovery.

CASE VIII. was a patient two years and two months old, and in a most critical condition when intubation was performed. On the fourth day the tube was removed, and, as it was impossible for the child to live without it, a tube one size smaller was introduced, fearing the effect of the continued pressure of the larger tube upon the vocal cords. The next day this tube was rejected and the symptoms again assumed the most dangerous character. The larger tube was again introduced with immediate relief. On the ninth day the tube was again removed, and, as respiration was comparatively comfortable, it was thought proper not to reintroduce it. In about three hours the alarming dyspnea again returned, and, before it could again be seen, was nearly dead. The pulse became feeble, the extremities cold, the features livid, and the child covered with perspiration. It certainly could have lived but an hour or two longer. The tube was again introduced, and the child for the next two or three days was perfectly comfortable, eating rye bread, cookies, and meat, and taking sufficient quantities of milk. False membrane was rejected when the tube was reintroduced, as on former occasions. On the thirteenth day the tube was again removed, but the respiration was still very

much embarrassed. An emetic was given, which greatly increased the dyspnea. After waiting one hour and a half, the smaller tube was reintroduced. On the eighteenth day this tube was again rejected, but it was not necessary to reintroduce it, and the child made a complete and perfect recovery.

CASE XI. was seen with Drs. C. E. Caldwell and Ogden. The child had an attack of measles, when, just as the eruption was fading, diphtheria occurred. The uvula and tonsils were well covered with the diphtheritic exudation, and the constitutional symptoms quite severe, the thermometer registering 102° F., and pulse numbering 140 per minute for two or three days, when the larynx became involved and the child's life threatened by suffocation. Three physicians stated that the child could not possibly live without help. In this condition intubation was performed. On the fourth day, during an attack of coughing and vomiting, the tube was rejected. It was not necessary to reintroduce it, the constitutional symptoms subsided, and the patient made an excellent recovery.

CASE XIV. was sent to the hospital of the College of Physicians and Surgeons. The people were so poor, and the surroundings so unfavorable, that it was thought that the little patient's chances would be much better at the hospital. Instead of taking the child in a closed carriage, as directed, he was taken in the street car a distance of several miles. He arrived in a most critical condition, and Dr. Dahlberg and Prof. Quine who assisted, and the entire class, who witnessed the operation, entertained but the slightest hope of recovery. The operation was performed in the afternoon of December 3d. The pulse was very rapid and feeble, respiration labored, and the features livid. The child was *in extremis*.

Dec. 4th, 9 A.M.: temperature, 100° ; pulse, 156; respiration, 36. Three P.M.: temperature, $100\frac{3}{4}^{\circ}$; pulse, 137; respiration, 26.

Dec. 5th, 9 A.M.: temperature, $101\frac{1}{2}^{\circ}$; pulse, 150; respiration, 22. Five P.M.: temperature, $100\frac{3}{4}^{\circ}$; pulse, 142; respiration, 26.

Dec. 6th. The inflammation had extended upward into the nasal passages, and the left nostril was completely occluded, with a bloody muco-purulent secretion. Nine A.M.: temperature, 100° ; pulse, 150; respiration, 32. Three P.M.: temperature, $101\frac{1}{2}^{\circ}$; pulse, 155; respiration, 40.

Dec. 7th, 8 A.M.: temperature, $101\frac{1}{2}^{\circ}$; pulse, 140, respiration, 36. One P.M.: temperature, 102; pulse, 150; respiration, 48.

At 6 P.M., four days after the operation, the tube was quickly and easily extracted. The patient remained very feeble for the next few days, but gradually the strength returned, and the child was discharged from the hospital December 14th, entirely out of danger. In this case the treatment consisted of $\frac{1}{32}$ gr. of bichloride of mercury every hour for the first two days. For the next two days repeated every four hours, and after the removal of the tube full doses of iron and quinine.

Although these statistics were not sufficient to decide positively the true value of intubation, yet the results were encouraging, and Dr. Waxham predicted that at no distant day tracheotomy would be entirely superceded by "tubage of the larynx."

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Derby: Contagious Ophthalmia in Asylums and Residential Schools. (*Med. Record*, June 13.)

Any child who is an inmate of our public institutions is far more likely to lose his sight from the inroads of contagious ophthalmia than to lose his life from diseases like scarlet fever. Blenorrhoeic conjunctivitis, in its chronic form, is characterized by injection of the conjunctivæ of the eyelids, hypertrophy of the papillary bodies, and secretion of a purulent or a mucopurulent nature. The

conjunctivæ tarsi of the fold of transmission, the semilunar fold, are, in general, the seat of disease, while the conjunctiva of the eye ball may, and generally does, in the earlier stages of the disease, escape. The secretion is contagious. At an early period of the affection the meibomian glands are no longer to be seen upon eversion of the lids; later on, the swelling of the semilunar fold increases, as does that of the fold of transmission; the inner canthus ceases to be sharply defined; the tear-points are disturbed in their position, and the passage of the tears interfered with. If the disease progresses, the conjunctiva of the sclera participates in the affection; the ocular conjunctiva becomes swollen; there is chemosis; the cornea is now in danger. Blenorrhœic conjunctivitis in a vast number of cases remains an affection of the conjunctiva of the lids, and does not advance to a later stage. The secretion from a blenorrhœic conjunctiva is contagious and may be transferred from eye to eye by means of a towel, or by water used for washing, or the atmosphere itself may be the bearer of the contagion. The disease was found present to a greater or less extent in twenty-four orphan asylums that were visited. Various communicable eye diseases have been designated under the general term of contagious ophthalmia. Among them are those where the true granulations, the so-called trachoma of Arlt, are present; others that may be more properly described as chronic conjunctival blenorrhœa. In some the affection extends to the cornea, producing pannus, and in certain cases corneal ulceration has been followed by prolapse of the iris and adhesion. Under no circumstances should children be received in an asylum until a competent authority has pronounced the eyes of the newcomers free from any trouble of a contagious character. Every asylum and residential school of the city should be called on to furnish to the Board of Health a statement, certified to by its attending physician, of the number of cases of contagious eye diseases at present within its walls, and a rigid quarantine be enforced, with adequate treatment.

Hill: Roller-Skating for Girls. (*Med. Record*, June 13.)

With the utmost care as to time and amount the doctor has found roller-skating unsatisfactory. It seems to bring out any latent predisposition to disease, and the sport should be forbidden those who have the slightest tendency to kidney or heart trouble. A most intractible

case of anemia was caused by skating excessively. Those who have skated very much have leucorrhœa, and confess it is aggravated by even a limited amount of the exercise. The doctor questions whether young girls can take even slight exercise of this nature without injury.

Simon (Paris): **Lecture upon the Treatment of Diphtheria.** (*Rev. Mens. des Mal. de l'Enf.*, Aug.)

Of those things which one must not do: (1) One must not use vesications upon surfaces which are covered by false membranes; (2) one must not bleed, nor use mercurials in a way to reduce the patients strength; (3) one must avoid using those opiates which reduce the vitality. These notions are elementary at the present time, but they are very important.

For the treatment of diphtheritic angina the author uses three means,—applications, irrigations, and gargles. The applications may be of lemon juice, of simple or aromatic vinegar, or simply of pure red wine. No objection is made to weak solutions of perchloride of iron, or tannin, as applications, but the other substances are preferable. Some pressure should be used as the application is applied to the false membranes, but no violence. Treatment should be made every hour during the day, and every two hours at night. If the patient is old enough to know how to gargle, he should be required to do it every two hours, with either of the following solutions: boric acid, 1:25; borax, 1:50; chlorate of potash, 1:25; lime water or vinegar water. If the patient is too young to gargle, irrigations must be used. For this purpose a vessel with a capacity of two litres may be placed in a sufficiently elevated position, and every hour a lukewarm solution of one of the substances mentioned, of at least a litre in volume, may be used, the effect being not only to wash out the throat, but to relieve pain. Upon the neck it is well to place a pad of cotton-wool smeared with some sort of fat, in which has been incorporated belladonna or iodide of potassium. Ice applications to the neck, in the form of an ice-bag, are not approved of. Internally one may take three to six drops of perchloride of iron in a sufficient quantity of water, every two or three hours, just after liquid food has been taken. If the patient is more than five or six years of age, one may administer small quantities of cubebs or copaiva. No good results have followed the use of chlorate of potash, in the author's experience, in this disease, and large

doses are very apt to weaken the patient. A tonic regimen should be thoroughly carried out, consisting of alcohol, in the form of brandy or rich wines, extract of quinquina or calumbo. The temperature of the sick-room should be kept constantly at 15° to 16° C. (59°–61° F.). Aëration should be accomplished when possible by opening an adjoining room from time to time, the window in the sick-room being constantly closed in that case. It is also well to have the air of the sick-room moderately charged with the vapor of thymol, or of phenic acid. Delthil's method of submitting patients for long periods to an atmosphere surcharged with vapors of gas tar or turpentine, is considered as still upon trial, especially since it tends to diminish the respirable oxygen in the sick-room. When the symptoms of croup first appear, an emetic should be at once administered, and ipecac is preferred. The dose may be repeated two or three times if the indications warrant it. Tracheotomy is indicated in all cases in which there is a mechanical obstacle to the passage of air into the lungs, thus threatening death by asphyxia. The signs which are present when intervention is demanded are increasing dyspnea, drawing upon the diaphragm and sternum, suffocation, pallor of countenance, etc. The time to operate is when the asphyxia begins, but this rule should not prevent one from operating at a later period, even if the child should seem to be *in extremis*, as it is the only means by which help can be obtained.

A. F. C.

¶ **An Epidemic of Diphtheria Spread by Personal Communication.** (*Medical Times*, Nov. 14.)

In the parish of Whixley, the introduction of diphtheria was traced to a boy in a school from another town, in whose family the disease was prevailing. He had a sore throat at the time. As fresh families were attacked it was traced to the member in each case who had been attending this school. The drainage and cess-pools of the school were found in very bad condition. Fifty-one cases occurred, with ten deaths. Several instances were noticed of second attacks, and children who had previously had croup were taken. An especial liability was shown by those who were subject to tonsilitis.

Droixhe: Cocaine and Resorcin in Whooping-Cough. (*El Progresso Ginecologico y Pediatra* [from *Jour. d' Accouchements*], Aug. 10.)

These two drugs have been found very useful in diminishing the intensity of the paroxysms of this dis-

ease, and also in shortening its duration. The resorcin treatment was first advocated by Moncorvo, of Rio Janeiro, and the cocaine treatment by Labrie. It occurred to the author to combine the two methods and the results have thus far been satisfactory. The cocaine, in a ten per cent. solution, is first applied with a brush to the isthmus of the fauces and the epiglottis. After waiting five minutes the brush is then moistened with a solution of resorcin and applied to the parts which have been already anesthetized by the cocaine. The result is that the laryngeal excitation is notably diminished and the paroxysms of coughing become less intense and less fatiguing. How often this treatment is to be repeated is not stated.

A. F. C.

Kriege: The Treatment of Diphtheria with Papayotin. (*Rev. Mens. des mal. de l'Enf.* [from *Jahrb f. Kinderh.*, 1885, xxiii., 1 and 2], Nov.)

Jacobi is quoted as dividing the topical applications for diphtheria into—

1. Those which dissolve the false membranes.
2. Those which modify favorably the surfaces which are covered by false membranes.
3. The topical disinfectants.

The first class is especially valuable with those who consider that diphtheria is primarily a local disease. Papayotin is to be placed in this first class.

Kohts reports the following results from its use.

1. The membranes of the naso-pharyngeal cavity were softened and completely dissolved in a five per cent. solution of this drug; applications were made every thirty minutes. Croupous membranes of the trachea were also softened and ejected in the course of two to three hours.

2. The infiltrated form of diphtheria is not influenced by papayotin.

3. It has no harmful action on other organs, such as the mucous membrane of the pharynx, the trachea, the bronchi, and the stomach.

4. It should not be considered as a specific against diphtheria, nevertheless if employed at the beginning of the disease, it will arrest its development, and the propagation of the diphtheritic virus, and thus diminish mortality.

The author has treated fifty-eight cases of diphtheria with papayotin and his results accord with those of Kohts.

A. F. C.

Roth: Sulphate of Iron for Catarrh of the Stomach in Little Children. (*L'Union Méd. du Can.*, Oct.)

One of the most important symptoms of this condition is an acidity of the contents of the stomach and intestines. The matter which is vomited has a pungent odor, and, on being exposed to the atmosphere, has a greenish color, the same being true of the contents of the intestine. Those portions of the skin which are soiled by this matter, as the anus and scrotum, become reddened. This green color is not due to the use of calomel. Absorbents are frequently given to overcome the acid, and tonics to combat the catarrh, but these means are not invariably successful. The author is in the habit of using the sulphate of iron, which possesses a multiple and favorable action, serving also as a disinfectant. The stools become changed in color, and lose their bad odor. The astringent action of the iron causes the turgid mucous membrane to contract and coagulate the albuminoid substances. It is well to continue the use of the iron for several days. The following formula has been found satisfactory:

R.—Ferri Sulph., 0.1 grammes;
Mucil Acaciæ;
Syr. Simp., āā 20 grammes.

Sig.—Coffee spoonful every two hours. A. F. C.

Therapeutics of Cholera Infantum (editorial). (*Therapeutic Gaz.*, Oct. 15.)

The first point to be noted is that the high mortality from this disease in tenement house districts does not materially decline from year to year, notwithstanding the increasing hygienic and sanitary knowledge. For this, however, the ignorance and carelessness of that portion of the community is to be blamed, not physicians and boards of health. From Baginsky's recently published essay on the prophylaxis and therapeutics of cholera infantum, the following points are to be noted: Prophylaxis should begin with the notation of every dyspeptic disturbance which may occur during the summer. If the dyspepsia be attended or followed by a catarrhal diarrhea, which cannot be cured in spite of strict diet and suitable remedies, the child should be sent to the country, if possible. The treatment of choleraic paroxysm is intended (1) to check hypersecretion; (2) to revive the cardiac power. Opium is sometimes necessary, but must be given with great caution and in combination with an

antiferment, such as calomel, iodoform, resorcine, or bismuth. Large rectal enemata of lukewarm water are also recommended. Should the condition deepen to one of collapse, strong coffee and alcoholic stimulants are indicated, and to these may be added camphor, benzoic acid, liquor ammonia anisati, or liquor ammonii succinii. If the administration of these medicines is followed by vomiting, acetic or sulphuric ether, or tincture of musk, should be given hypodermically. In extreme collapse seltzer water, with wine or cognac or coffee, may be given freely. In the algid condition hot bottles should be placed near the feet, and cold compresses every half hour to the abdomen. In the period of reaction the food may be mother's milk, cow's milk, or Biedert's food. Warm compresses should be applied to the abdomen, and even to the head. Wine or coffee may also be given. In the typhoid state of cholera infantum, lukewarm applications to the thorax and abdomen may be made, especially if the respiratory tract has been attacked. The eyes also must not be neglected, and it is well to keep them covered with a cloth saturated with very dilute chlorine water.

Chaumier: The So-called Diseases of Dentition. (*L'Union Méd. du Can.* [from *Gaz. des Hôp.*], Oct.)

An examination of the literature of this subject by the author, together with the experience which his personal observation has given him, convinces him that the so-called diseases of the first dentition are less frequently due to the eruption of the teeth than is commonly supposed. The diseases of dentition are usually divided into the local and the general.

1. Local diseases would include those which are directly due to the irritation of the new tooth, and the afflux of blood which would be caused by its eruption. Examples of these diseases are the various inflammations of the gums, ulcerations, aphthæ, painful swelling of the gums, etc.

2. Of the general diseases may be mentioned, (a.) diarrhea. Of this disease two varieties may be mentioned, (1) that form which is due to insufficient or improper nourishment; (2) epidemic, or summer diarrhea. The latter form may occur, however, at any season of the year, and is not always attributable to the eruption of the teeth.

(b.) Cough. This is mainly caused by two conditions, pneumonia and bronchitis, both of which are frequently epidemic, the latter more so than the former.

(c.) Cutaneous eruptions seated upon the face, the eyelids, or the scalp. These eruptions are usually of an impetiginous character, and the evidence of an epidemic, contagious, and inoculable affection.

(d.) Fevers. Of these two very common forms present, the phenomena of angina, one may be called erythematous, or simple angina, and the other amygdalar fever, the tonsils being extensively involved. The latter form begins suddenly, like pneumonia, with active fever, sometimes with vomiting; the tonsil, or tonsils, are swollen, red, and may be covered with a whitish exudate, and the system in general is very much depressed.

(e.) Convulsions. Concerning the origin of this condition, which is so common among children, it is not always possible to give an accurate opinion. It is known, however, that it may proceed from diseases of the nervous centres, from epilepsy, hysteria, etc. Among those children whose parents have the so-called tendency to *nervousness*; or who inherit *nervous* dispositions, attacks of fever are very prone to be associated with convulsions.

A. F. C.

Guerin (Paris): Complementary Treatment of Club-Foot, which has been Complicated by Sub-cutaneous Section of the Ligaments of the Foot. (*L'Union Méd. du Can.* [from *Abeille Méd.*], Oct.)

The tendency of orthopedic surgery to penetrate the domain of general surgery is more and more apparent. If it enters that domain with the important acquisitions which have characterized its development, and have assured good results for it, it would seem to be worthy of congratulation. But the author thinks that general surgery recognizes this infringement by indirectly attributing to it two characteristics of inferiority: (1) it absolutely ignores the scientific basis upon which true surgical orthopedy depends; (2) it seeks to obtain results by methods which are old and outgrown, and which orthopedy has improved upon after much patience and experience. He recalls the fact that, in 1882, he energetically protested, in the Academy, against the total or partial ablation of the tarsal and metatarsal bones in the treatment of club-foot, and that his opinion was cordially endorsed. Since that time, however, French surgeons have not hesitated to attempt, in numerous instances, operations for tarsotomy upon children, a procedure which is well enough adapted for cases of long standing in adults.

The operation which was to be described was that of

syndesmotomy, and was first described by the author forty years ago. It consists in obstinate cases of club-foot, in dividing subcutaneously the ligaments which join the bones of the tarsus and metatarsus, when those ligaments are opposed by a shortening which is primary or secondary to the complete straightening of the parts. The ligaments which must be divided are: in plantar talipes equinus, the inferior calcaneo-cuboid; in irreducible talipes varus, the internal lateral ligament of the tibio-tarsal articulation, the internal calcaneo-scaphoid ligament, and the ligaments which join the scaphoid to the cuneiform bones. These strong ligaments must be entirely divided, and this can be successfully done only with the following precautions: (1) the cutaneous opening must be made at a point which is somewhat remote from the point of ligamentous section, and at the base of a fold of the skin, which is to be raised; (2) the cutaneous wound should be covered with plaster; (3) attempts at straightening must not be practiced until sufficient time has elapsed for the cicatrization of the parts, and then only slowly and gradually. A case was narrated by the author, in which a boy three years of age had been brought to a Paris surgeon with extreme talipes equinus varus. The surgeon divided the Achilles tendon, and the anterior and posterior ligaments of the leg. One of the wounds suppurated. After treating the child for several months, the deformity remaining, he gave the case up as incurable. Five years later the child was brought to M. Guérin, who operated as follows: (1) he divided the Achilles tendon at two different points, above and below the old cicatrix; (2) he divided the anterior and posterior ligaments of the leg; (3) he divided the adductor of the great toe; (4) he divided the internal lateral ligament, the calcaneo-scaphoid, and the calcaneo-cuboid. The operation was in all respects satisfactory, a perfect result being obtained.

A. F. C.

Anon (Montreal): **Concerning Vaccination.** (*L'Union Méd. du Can.*, Oct.)

The writer, in an anonymous letter to the editors of this journal, observes that the terrible epidemic of variola, which, at the time of his writing, was ravaging Canada, teaches important lessons, and the following incontestable truths:

(1) That vaccination should be practiced without delay on all who have not been vaccinated, as the only means

of arresting the disease. If a case of variola appears in a family, *all* its members should at once be vaccinated.

(2) The bad cases which have been the result of inoculation are not the effect of true vaccination, but the unhealthy consequence of using vaccine which is more than three weeks old. Erysipelas and other bad results are attributable to this cause.

(3) The vaccine should not only be used while it is fresh, but it should be kept, before using, in a cool place, not in one's pocket, where it will be readily decomposed by the heat from the body.

(4) A serious question to be considered is as to the propriety of vaccinating pregnant women near the end of utero-gestation, especially during the time of an epidemic. Numerous cases are on record in which children have had variola *in utero*. They have infected the mother, and both have perished from the disease. In the author's opinion one should not hesitate to vaccinate, in the interest of both mother and child. Infants should be vaccinated as early as the third month of life. A. F. C.

2. MEDICINE.

Winters: Diphtheria and its Management. Are Membranous Croup and Diphtheria Distinct Diseases? (*N. Y. Med. Record*, Dec. 5.)

The existence of a pseudo-membrane in the lower part of the larynx and in the trachea, is no evidence of the non-diphtheritic origin of the exudate. Neither the extent nor the histological structure of the false membrane affords ground for a distinction between these two affections. Morbid specimens from cases termed croup, and from cases of diphtheritic laryngitis, cannot be differentiated by the pathological anatomist. Sporadic pseudo-membranous laryngitis has been known to convey diphtheria in its most pronounced form. Again, a mild case of diphtheria may give rise to no symptoms to attract attention to the existence of the malady until the complication of croup obtrudes it on the attention of the parents or nurse. The occurrence of marked paralysis, after so mild an attack of diphtheria as to be almost overlooked, is sufficient evidence that the cases of membranous croup, which are said not to have been preceded

by diphtheria, may have been diphtheria of an equally mild type, in which croup was the first symptom to attract attention. It is maintained that croup is not contagious, while diphtheria is. Cases have been reported where membranous croup having attacked one in a family, other members of the same family have suffered immediately from diphtheria of the tonsils and pharynx. Diphtheritic laryngitis is much less contagious than tonsillar and pharyngeal diphtheria, as it is evident that it would be, owing to the seat of the disease, but the contagious property in the cases of so-called non-diphtheritic croup has been as marked as we ever note it in diphtheritic laryngitis. It is certain that an idiopathic laryngitis arising from cold could no more be contagious than bronchitis from the same cause. The condition of the lymphatic glands is no criterion of the nature of the laryngeal affection. Albuminuria may be present or absent in either form of disease. It is held that croup is a sthenic, diphtheria an asthenic, depending upon the condition of the subject attacked and the character of the epidemic. Paralysis and other sequelæ remain long after the local symptoms have disappeared in diphtheria, while it is said that croup has no sequelæ following in its train, and yet cases of paralysis following "membranous croup" have been reported. In former diphtheria epidemics it appears, from the descriptions handed down, that diphtheritic laryngitis must have frequently occurred independently of any membranous affection of the throat above, and even now in some places, according to the evidence of many good observers, it is occasionally met with, but at the present time it certainly occurs almost exclusively with diphtheria of the throat. Simple laryngitis of both adults and children may exist for months, even almost indefinitely, without showing any disposition to extend into the deeper air passages; but diphtheritic laryngitis manifests this tendency very quickly, and always early involves the trachea and bronchi. It has been shown that in acute laryngitis with edematous infiltration of the submucous tissue below the vocal cords, especially where the cords are inflamed and swollen, there is laryngeal stenosis, with the same cough, dyspnea, and loss of voice that we have from membranous obstruction at the rima glottidis, symptoms which we have been accustomed heretofore to refer to pseudo-membranous laryngitis. If membranous croup, then, is only a complication of diphtheria, is it the natural tendency of diphtheria to

propagate itself into the larynx, or is this an accident of the disease, which, with due precaution, can be evaded? In corroboration of the view that cold and catarrhal inflammation predispose to, and even directly cause, the spread of the diphtheritic process into the larynx, we see that croup complicates diphtheria more in autumn, spring, and winter than in summer; that it occurs especially after sudden vicissitudes of temperature and rainfall, in connection with, or soon after, prevailing east or north-east winds. Croup is a more frequent complication in sporadic diphtheria than it is when the malady is epidemic. All have seen exacerbations of diphtheria from cold, and it is evident that there is not the importance attached to prevention of exposure, to absolute rest, and to conservation of strength, which seems to be demanded in this malady. In patients kept in bed there is rarely seen that extreme prostration so common in diphtheria, nor do we so frequently meet with the slow, feeble, and irregular, or the very fast pulse. If allowed to be up, asthenia and the exudation advance together, the one increasing the other. All the cases that have come under the author's care testify to the view that croup as a complication of diphtheria is usually accidental. In treatment, the author strongly condemns the large doses of mercury that have lately been recommended for croup. He has seen several cases in consultation in which death from diphtheria resulted, and was to be imputed to, the excessive use of mercury rather than to the disease. Large doses of mercury, often repeated, powerfully depress the system of the adult, and naturally this depression is more profound in the child. When the symptoms of diphtheria have been active from the outset, with considerable soreness of the throat, and with early and marked membranous formation, if the patient has at once been placed in bed, diaphoresis induced, the bowels gently acted upon, the neck counter-irritated and poultices applied, there is marked improvement; and such cases, if judiciously managed, do well, and in nearly every instance make a good recovery; and presumably by rapid elimination of the poison. By elimination, expulsion of the morbid matter is promoted, and we are able to use, with decided benefit, drugs directed against the disease, such as iron, quinine, etc. For the purpose of eliminating the poison, so far as possible by the throat, intestines, skin, and kidneys, have recourse to mild purgation, simply sufficient to excite the activity of the glands of the intestinal tract,

trituated calomel in small doses being the best for this; hot poultices to the neck to excite the activity of the mucous glands of the throat; pulv. ipecac. co., as a sedative, diaphoretic, diuretic, or the hot foot-bath, according to indications. After the membrane has formed, the process of repair is due to the effusion of serum, the exudation of mucus, the immigration of pus-corpuscles, and the loosening of the pseudo-membrane by ulceration. Counter-irritation to the neck, moist heat externally and internally, by diminishing the congestion, imitate the method of nature. Turpentine is a rubefacient which acts with great promptitude. For vaporization, nothing is more satisfactory than lime water, two parts, to alcohol one part. in the ordinary iron or tin croup-kettle. The next indication is to counteract the effects of the poison on the blood, toward which purpose pure air, sunlight, and quinine play active parts. Sunlight is the most harmless and perfect disinfectant. Tincture of the chloride of iron, in diphtheria as in erysipelas, increases the vital contractibility of the bloodvessels, probably by its stimulant tonic effect on the nerve and vascular systems, thereby preventing the spread of the disease process. Large doses must be given. In many cases of diphtheria in New York, alcoholic stimulants take first rank in the treatment. The exudate, which results in the formation of false membrane is usually at first more fluid, less concrete than it is after its retention on the mucous surface, where it finally forms a distinct layer. For this reason an emetic should be administered occasionally when there is a disposition to extension into the air passages. Ipecac is the best emetic. In nasal diphtheria, thorough and frequent disinfection is very necessary. Equal parts of lime water and saturated solution of chlorate of potash; lime water, with ten or fifteen drops of carbolic acid to the ounce; and salt water, with alcohol, are good.

Stadfeldt (Copenhagen): **Hemorrhages into the Large Cavities in New-Born Infants.** (*El Progreso Ginecologico of Pediatra*, Aug. 10, abstracted.)

The author, after an especial investigation upon this subject, has reached the following conclusions: That the hemorrhages, in the form of ecchymoses, into the lungs and pericardium of new-born infants are frequently produced during parturition, and, as they remain for some time before complete absorption has taken place, their influence, which tends to the production of asphyxia, must

not be overlooked. He also observed that the hemorrhages into the cranial cavity, which have usually been considered in legal medicine as the result of suffocation at the time of birth, are usually due to traumatic causes during parturition. These hemorrhages are not necessarily fatal, especially if they are circumscribed upon the surface of the brain. Even after considerable effusions of blood children may live for some time, as has been shown by autopsies. The author also disagrees with Milray, who attributes to asphyxia the hemorrhages which sometimes occur within the cavity of the spinal column. He believes that they are caused by violence of some character at the time of parturition. A. F. C.

Remak: Three Cases of Tabes in Children. (*Rev. Mens. des Mal. de l'Enf.* [from *Berl. Klin. Wochen*, 1885. No. 7]. Nov.)

These cases were observed in Heischberg's polyclinic for diseases of the eye, and were all of syphilitic origin.

The first occurred in a girl twelve years of age. When nine years old she fell, striking her head, but showed no subsequent symptoms of meningitis. After a while incontinence of urine and of feces occurred, and this condition was followed by repeated attacks of vomiting and lost of consciousness; there were, however, no convulsions. There were, also, on several occasions, violent pains in the occipital region, and, in the latter part of 1882, ptosis of the right lid, and intense amblyopia on the same side. The ophthalmoscope allowed considerable atrophy of the optic nerve, contraction of the central vessels, diminution of the sharpness of vision, and of the visual field, especially on the right side. Professor Mendel found in the child marked deficiency of sensibility, especially in the lower extremities and absence of the patellar tendon reflex. There was no evidence of ataxia, though there were lancinating pains in the arms and legs, sensation of cold, numbness in the limbs, and violent pains in the stomach, these last-mentioned symptoms being followed by uncontrollable vomiting. Under the influence of iodide of potash, nitrate of silver, and a visit to the country the general condition improved, so that there remained only a vesical disturbance, intense amblyopia and absence of patellar tendon reflex.

The second patient was a boy of fourteen, who had suffered from dimness of vision for six months, when he came under treatment. Both eyes were hypermetropic, there were atrophy and degeneration of the optic nerve,

and diminution of the visual field. There was a suspicion of syphilis in the mother's history, and she also suffered from nephritis while she was pregnant with the patient. During childhood the boy suffered from numbness, from ganglionic enlargements, and intense chronic coryza. Later in life he had occasional attacks of rheumatism, especially in the muscles of the left side. For a year previous to his treatment by the author there was incontinence of urine, both by day and by night. Romberg's symptoms was absent; there was no trace of paresthesia; nor of anesthesia nor ataxia. Patellar tendon reflex was absent. Under the use of iodide of potash there was decided improvement. The third patient was a boy sixteen years old, who also came to the clinic on account of dimness of vision. There were double myopia, a greenish tinge to the optic nerves, with atropia and contraction of the central vessels. The father was syphilitic, and also had tabes in its first stage when examined. The mother had been dead six years when the child was first seen, having had two nominal labors and abortions. The child had suffered almost from infancy with coryza, and had multiple eruptions over the entire body. Three years previous to treatment there had been nocturnal incontinence of urine, which disappeared spontaneously after six months. For two years there had been frequent attacks of sharp pain in the incisor teeth, which were not at all decayed. If the child closed his eyes, he would begin to lose his balance. There were also Romberg's symptom and staggering. The only painful point was over the seventh cervical vertebra. Sensibility to touch was obtuse on the inner side of the thighs and legs. There was no patellar tendon reflex. A. F. C.

Diaz Pulido: Diphtheria. (*Anales de Obstetricia, Ginecopatía y Pediatría*, Sept.)

This paper was read by its author before the Gynecological Society of Madrid. Objection was made to the statement of Trousseau that diphtheritic paralysis was attributable to inflammation, which was localized in the palate and pharynx, the paralysis appearing, perhaps, in other organs. It was believed that the paralysis was associated with the same process which produced the albuminuria of diphtheria, though it (paralysis) was sometimes seen in cases of diphtheria in which there was albuminuria. The author thought that there were organic lesions of nervous centres in such cases, though

that had not yet been demonstrated. In a case of diphtheritic conjunctivitis which was presented there was no lesion of vision, nor of the refractory media of the eyes. Diphtheria is not a local affection, and there cannot be a benign and a malignant variety, except as one refers to the results which are obtained. The nature of the disease is always the same. This does not of necessity imply that there cannot be cases of the disease in which the local symptoms alone are perceptible, as obtains also in syphilis and variola. The rule is that, in the majority of cases of diphtheria local symptoms will precede the general disturbance. Since the disease depends upon a systematic poison, the means of treatment should be such as have in view the destruction of this poison, hence merely local applications are not sufficient as means of treatment. This does not obviate the necessity for vigorous local treatment, however, and especially at the beginning of the disease. A. F. C.

Van Santvoord: Does Laryngeal Stenosis Cause Pulmonary Hyperemia? (*Med. Record*, July 4.)

It is conceivable that death might occur in diphtheritic croup from the sudden occlusion of the larynx by a detached piece of membrane, or from the sudden stoppage of a tracheotomy tube, and in these cases congestion of the lungs might indeed be produced. As a rule, however, we have to do with a stenosis causing dyspnea, which lasts for hours and perhaps days, with exacerbations and remissions produced by temporary lodgment of secretions in the narrowed air-tube, etc. It is the doctor's belief that under these conditions the violent inspiratory efforts of the patients draw in more air past the obstruction than is forced out again, the result being that the mean pressure in the interior of the alveoli and bronchi is greater than normal, and that this increased intra-alveolar pressure more than overcomes the tendency to pulmonary congestion, which otherwise would exist. This belief is founded on the facts that in persons suffering from laryngeal or tracheal obstruction, the chest is observed to be greatly distended, and in the examination of lungs removed post-mortem from patients who have died from narrowed air passages, an amount of emphysema is seen that appears more extensive than could have been caused secondarily to other lesions. The doctor considers it proved: 1. That total, or almost total, occlusion of the air passages may give rise directly to

pulmonary hyperemia. 2. That tracheal or laryngeal stenosis does not give rise directly to pulmonary hyperemia, but, on the contrary, to over-distension, emphysema, and anemia of the lungs; secondarily, heart failure and consequent congestion of the lungs may occur. 3. The pneumonia found complicating laryngeal croup is catarrhal pneumonia, developing from the extension of the inflammation downward, just as would happen if no stenosis existed. The only effect the latter has upon its development is indirect, in that stenosis of larynx or trachea prevents the free egress of bronchial secretions. There are good reason for the early performance of tracheotomy, but the danger of pulmonary congestion, splenization, and edema occurring as a direct result of laryngeal obstruction is not one of them.

Unruh (Dresden): Individual Predisposition to Diphtheria. (*Arch. f. Kinderh.*, Bd. vi., H. 2.)

The author pertinently remarks that one must not only know in regard to this or that micro-organism, which is supposed to produce certain diseases, but must also ascertain the external circumstances which act as factors in producing those diseases, and this knowledge may be all important. This fact is illustrated by a tabulation of the diphtheria cases which were treated in the Dresden Hospital for Children from May, 1878, to the end of 1883, which showed that the number of such cases acquired while the patients were in the hospital (*i. e.*, from infection) gradually diminished year by year, apparently as the result of careful prophylactic and hygienic precautions, including isolation in separate pavilions, etc. Also of those who contracted the disease from infection forty-four per cent. suffered from tuberculous or scrofulous affections, chiefly of the bones or joints, thus showing the predisposition which such diseases lend for the acquirement of diphtheria. This predisposition was evidently more decided than that which obtained with children, in the same wards, suffering from heart and lung affection, even though the latter were more prostrated by their sufferings, and had been longer surrounded by hospital influences. The author seeks to establish the fact that the idea involved in the term diphtheria is a collective idea for a series of affections which are certainly related to each other, but are yet fundamentally different, as is the case, for example, with the gangrenous angina, which accompanies scarlatina. What is called diphtheria at the present day may be excited by very

different causes—by those which lie without, as well as those which are within the individual. This agrees with Heubner's views, and he has succeeded in producing experimental diphtheria without the aid of micro-organisms. Furthermore, the so-called genuine diphtheria is not wont to follow throughout that typical course, which we can observe in other acute infectious diseases, and its diagnosis is made to rest exclusively upon a local condition, in the absence of which neither the pulse, the course of the temperature, nor other phenomena make it possible to say that diphtheria is present, or to venture a prognosis. Indeed, the author believes that true diphtheria is far more rare than is commonly believed, and also that it is more frequently engrafted upon other diseases, especially upon tuberculosis, than is usually believed.

A. F. C.

Barr: Scarlet Fever; Complicated by Nasal and Pharyngeal Diphtheria; Acute Suppuration of both Middle Ears; Rapid Destruction of Tympanic Membranes; Serious Loss of Hearing; Facial Paralysis; Abscess of the Lachrymal Sac; Final Recovery. (*Lancet*, Oct. 10.)

The patient was a healthy girl of four years. The initial fever and throat symptoms were only moderately severe. At the beginning of the second week the temperature, which had begun to decline, took a sudden rise to 105° F., and severe throat and nasal symptoms developed, which proved to be diphtheria. This was of an asthenic type, and at times death was hourly expected. While it was at its worst, acute suppuration in both ears took place, with perforation of the tympanum.

In the fourth week, as she was beginning to improve a little, an abscess formed in connection with the lachrymal sac of the right side and was opened. A week later right facial paralysis was noticed. Now that she was well enough to be tested, it was found that she was so deaf as to hear only when spoken to very loudly and close to the ear. The dry boracic acid treatment, and that by nitrate of silver, having proved utterly useless, the following plan was adopted:

1. Syringing with a warm boracic acid solution.
2. Carefully drying with cotton.
3. Instilling into the ear fifteen drops of warm dilute alcohol, and allowing this to remain fifteen minutes, the child lying on the opposite side.
4. Again drying thoroughly and inserting a plug of salicylated cotton.

This was repeated every eight hours; the middle ear being inflated once a day by Politzer's method. The result was that the abundant granulation tissue soon began to shrink rapidly. In four weeks the discharge was reduced to a trace, and the hearing was decidedly better. In nine weeks the facial paralysis was completely gone. In four months she was almost as well as ever. The case is one of great interest, and is exceedingly well reported. It well illustrates the value of faithful and persistent local treatment in these almost hopeless cases.

Sawtell: Hematemesis and Melema in the New-Born. (*Lancet*, Oct. 17.)

This case was reported to the London Clinical Society. A small male child, after a natural but rather tedious labor, suddenly vomited blood twenty-one hours after birth, and shortly after passed blood *per anum*. This latter continued and was mixed with meconium and mucus. The child died twenty-four hours after the first appearance of blood.

The only lesions bearing on the case were found in the stomach. Here were small, round, deep ulcers on the posterior wall near the cardiac end and lesser curvature.

Several other cases of a similar nature as regards symptoms were quoted, but in none was ulceration found. The reporter was of the opinion that in the above case the ulcers arose from portal obstruction and erosion by the gastric juice.

Dr. Radcliffe Crocker thought such cases analogous to those milder ones of purpura neonatorum, where extravasations were seen beneath the skin.

Dr. Edis referred to cases of spurious hematemesis in which the blood came from the mother's nipple and had been swallowed by the child.

Knight: Sarcoma of Os Innominatum in a Boy of Thirteen, Secondary Deposits in the Lungs and Kidneys. (*Medical Times*, Nov. 14.)

The patient was admitted with pain in the hip and a tumor on the crest of the ilium the size of a hen's egg. A fall six weeks before was the assigned cause. The tumor did not appear connected with the bone. It grew rapidly and in two months occupied a region extending upward to the thorax, downward to Poupart's ligament and filled the whole lumbar space. The leg was swelled and edematous. A slight cough was present and friction sounds were heard at the base of the left lung. He died about two and one-half months after admission.

The autopsy showed that the tumor grew from the ilium. Its weight was eight pounds four ounces. The whole spine in front was covered with numerous masses of the new growth, deposits were seen upon the ribs in several places. The pleuræ were almost universally adherent and were covered over with secondary nodules. The kidneys showed similar changes. Microscopically, the growth consisted of small round cells. Some of the more gritty parts of it, after decalcification, showed a growth of cartilage. So that ossification was already taking place in it.

Another case occurring in an adult is reported in the same connection, where the primary growth was from the femur and secondary deposits took place in kidney, skin, and mesentery.

Kolipinski: Aphonia Simulated in the Young. (*N. Y. Med. Jour.*, Oct. 17.)

The histories of two cases are given, in which a female mulatto of eighteen and a negro boy of eight years were suddenly seized with loss of speech, but it was afterwards proved that they were malingering. Mutism, which both selected as the startling affliction, is the most natural one imaginable. Children of a bashful disposition, as every body knows, are mute in the presence of strangers, and our subjects simply repeated what they perhaps often practiced before, but from different motives.

Seaton: The Characteristic Symptoms of a Febrile Epidemic at a School. (*Medical Times*, Oct. 31.)

The epidemic occurred in an orphanage, and began in June, and 157 children were attacked, all the adults about the place escaped. The symptom group was quite uniform. There was a sudden invasion with no prodromal stage. The attacks began with rigors, severe frontal headache, and frequently vomiting. The temperature rose in the mild cases to 101° or 102° , in the severe ones (about one-half), to 103° to 106° . The urine was scanty and there was almost complete absence of the chlorides. The fatal cases, seven in number, died in twenty hours. In the others the duration was from three to six days, unless there was a complicating pneumonia. The fall in temperature was sudden by a crisis. Herpetic eruptions were noticed in all the severe cases. Otorrhea in quite a number was present. Diarrheal symptoms were strikingly absent.

In only one case was an autopsy made. It showed pneumonia and congestion of the intestine.

The writer had no doubt that it was due to some specific poison. No similar cases occurred in the rest of the adjoining country. The water supply of the place was believed to be polluted.

Macgregor: Sarcoma of the Cerebellum. (*Med. Times*, Oct. 17.)

The patient, a boy of eleven years, had suffered for six months before admission from severe headaches and attacks of vomiting. The pulse was slow and irregular, and the ophthalmoscope revealed a left optic neuritis, the right fundus being normal. Later he developed left facial paralysis, dilatation of the pupils and a staggering gait. The vomiting continued, and he died comatose three months after coming under observation.

The autopsy showed a tumor of the left hemisphere of the cerebellum which measured two and one-half inches long, two inches wide, and half an inch thick. It consisted mainly of round cells and broken down brain elements. The diagnosis was reached during life mainly from the vomiting and optic neuritis.

Thomson: Scarlatinal Albuminuria and the "Pre-albuminuric Stage," Studied by Frequent Testing. (*Brit. Med. Jour.*, Nov. 14.)

This paper was read at the Royal Medical and Chirurgical Society, and was based upon an examination of 35,000 specimens taken from 180 cases. Special attention had been directed to the first appearance of blood and albumen to determine the exact condition of the urine in the so-called pre-albuminuric stage.

The following points were discussed.

1. *Period of Occurrence* of the albuminuria; these were divided into those of "initial" albuminuria, where it occurred during the first eight days of the febrile period, and those of late albuminuria coming most often at the third, fourth, or fifth weeks.

2. *Its frequency*.—The number of cases was not large enough for very positive deductions upon this point: but the fact of the frequency of mild evanescent cases of nephritis was very clearly shown, as albuminuria was found in sixty per cent. of all cases.

2. *The relations of the blood and albumen* to each other was of importance in showing that the pre-albuminuric stage was one of infrequent occurrence, and also showing

that there existed a post albuminuric stage with a urine of similar character.

4. *The pre-albuminuric stage.*—The conclusions arrived at differed from those generally accepted. Delicate tests showed albumen in this stage as well as hemaglobin. The same was true of blood-globule and casts. All these elements were likewise demonstrated in the post-albuminuric stage.

Dr. Charles West in the discussion on the paper said that we must come to the conclusion from it that the albuminuria was as much a part of the disease as the sore throat and swollen glands. Epidemics doubtless varied much with reference to this symptom. In one, Frerichs had noticed it in only four per cent.; in another, Heidenhain had found it in eighty per cent. The speaker had noticed it most frequently at the end of the first or the beginning of the second week. He regarded the prognosis as always good where the specific gravity did not fall much below the normal.

Dr. Dickinson regarded picric acid as a most delicate test for albumen, so delicate, in fact, as sometimes to be misleading. The kidney trouble should be regarded as an integral part of the disease. In some cases the poison seemed to expend itself on the throat while the kidney escaped. He considered only a small number of the cases of nephritis as due to cold. The use of inunctions was referred to as undoubtedly beneficial to those with whom the patient lived, but by arresting the action of the skin in convalescence might be injurious to the patient himself.

Mr. Owen Fowler had observed 2000 cases of scarlet fever at the London Fever Hospital during the past four years. He has found much albuminuria due to high temperature, and some due to the salicylates administered; besides these cases albuminuria due to the kidney disease in about fourteen per cent. of all cases.

Dr. Edwards thought the results given in some of the cases reported might have been produced by no more than a physiological trace of albumen.

Elliot: Keratosis Sebacea; A Case Associated with Hypertrichosis. (*Med. Record*, Jan. 16.)

Lebert defines keratosis sebacea as a species of seborrhea which differs from ordinary seborrhea in that it is accompanied by more extensive exfoliation of the epithelium of the sebaceous glands, the affection being primarily dependent upon an enormously increased secretion of

sebum, and upon epithelial hyperplasia. Keratofication is secondary, and results from inspissation and dessication of the secreted mass. The first changes observed in the development of keratosis sebacea consist in a largely increased secretion of sebaceous matter. It is poured out upon the skin, accumulating rapidly and becoming gradually inspissated, until it forms a hard and dry incrustation. The color, at first only grayish, becomes gradually brown, and then darker and darker, until it varies from a deep brown to even a black or greenish black. This change in color is due both to deposition of dust upon the surface, and also to pigment mixed with the secreted sebum. In the case cited a baby of seven months had a healthy skin up to the age of six weeks. At that time, diffuse, irregular, but distinctly limited erythematous patches began to appear upon both ankles and the dorsal surfaces of both feet. In a few days these patches were found covered with thin, whitish, easily detachable and soft scales, which, notwithstanding repeated washing, accumulated rapidly, became thicker and harder, and underwent changes in color, until they were dark brown or black. The patches soon extended upward upon the legs until the entire lower extremities were involved. The child's health remained perfect. Examined under the microscope, the incrustation proved to be composed of: sebaceous matter in great quantity; oil-globules; horny cells; free pigment; cholesterin crystals in large numbers; foreign matter. Diachylon ointment has removed the patches, but they have repeatedly returned when the treatment has been discontinued. The baby has hypertrichosis situated over almost the entire body, but most marked upon the lower extremities.

Keating: Lymphatic Leukemia in Childhood. (*Med. News*, Nov. 21.)

The author considers that the interest which attaches to this disease is mainly due to its rarity. It is to be considered, of course, as a form of anemia, and kindred with Hodgkin's disease, splenic anemia, and idiopathic anemia. It is well to remember in considering a subject of this character that the sources of formation of blood corpuscles are the spleen, the lymphatic tissues, and the bone-marrow. The term leukemia implies a hyperplasia of the blood-making organs with anemia and an increase in the colorless corpuscles. The clinical features in all

the forms of anemia are similar, whatever or wherever the cause. They include the progressive pallor of the surface and the accompanying circulatory symptoms, irregular febrile action, the characteristic essential fever, absence of decided emaciation, tendency to effusions of serum, progressive debility, recurrence of gastric and intestinal hemorrhages, and resistance to treatment. Leukemia may be splenic, lymphatic, or medullary, according as one or the other source of the blood corpuscles is affected. It may occur at any age, Osler having recorded a case in an infant eight months old. The principal symptoms are insidious onset, anemic appearance, epistaxis or other hemorrhage, diarrhea or other gastro-intestinal disturbance. The spleen may become very much enlarged; also the liver and the lymph glands. Enlargement of the tonsils and the follicles of the pharynx is common, and the lymph glands of the intestines and the peritoneum are always enlarged. Remittent fever is usually present. A detailed account of a case which was seen by the author is given in his paper, the patient being a child four years and a half old. The case progressed rapidly to a fatal issue. An examination of this patient's blood showed no alteration in the size or shape of the red corpuscles. The white corpuscles were greatly increased in number, were of different sizes, and many of them had feeble amœboid movements. No nucleated red corpuscles were seen, and Schultze's granule masses, which are often abundant in leukemia, were scanty. The prognosis in this disease is favorable, if the disease is discovered at the beginning, under treatment with fresh air, suitable diet, iron, quinine, arsenic, and salt bathing. When the case is well advanced before treatment is begun the result will be fatal.

Moncorvo: The Temperature of the Abdominal Wall in Cases of Acute and Chronic Enteritis in Children. (*Rev. Mens. des. mal. de l'Enf.*, Oct.)

Inflammations of the intestinal tube form one of the most important series of diseases which occur in childhood, in all countries. As to etiology two of the most important causes are improper food and chilling of the body. To these a third may be added, which is especially important in temperate and tropical climates—namely, malaria. Diarrhea is its principal phenomenon, and to the condition the author has given the name of *intestinal form* of malaria. The morbid condition sometimes begins with

diarrhea, at others it is ushered in by fever or by fever accompanied by diarrhea. Usually the fever disappears after a short time, but the diarrhea may persist for months and even years, with intermissions. In the course of the treatment of several hundred cases of this disease, it occurred to the author that valuable information would be obtained from a series of examinations as to the temperature of the abdominal walls during different phases of the disease. In making such examinations the surface of the abdomen was left uncovered for several minutes in order to bring it to the temperature of the surrounding atmosphere, then a Casella's local temperature thermometer was placed over the umbilical cicatrix. In this thermometer the reservoir for the mercury is encased in a wooden capsule, in order to prevent any inaccuracy as to the rise of the column of mercury, which might proceed from external influences. In the examination of a large number of cases he found that the local temperature varied between 36° C. and 37° C. The patients were divided into two groups; in the first there was enteritis, with elevation of temperature (taken by the *rectum* or the *axilla*); in the second, there was diarrhea, but no febrile temperature. In the first group the average internal temperature was 38° C., and in these cases no deduction was drawn concerning the surface temperature, which was usually very high at the same time, since it was directly dependent upon the central elevation of temperature. The value of the investigations as to surface temperature was seen, however, in cases of sub-acute or chronic enteritis of an apyretic form. It was seen that in these cases the temperature of the abdominal wall rises a short time before the diarrhea begins. On the other hand, there were cases in which a temperature of 36° C., or more, was indicated by the surface thermometer, though the diarrhea had disappeared, and this was taken as an indication that the intestinal mucous membrane had not been restored to its normal condition. It is thought the value of these investigations lies in the ability which is afforded of giving a prognosis in cases of this disease with greater precision than under ordinary circumstances. It was noticeable in the cases which were under investigation that the local or surface temperature declined in a parallel course with the declension of the intestinal inflammation. A. F. C.

3. SURGERY.

Hofmakl (Vienna): Osteoclasia, Osteotomy, and Osteotomy, in Deformities of the Different Bones and Joints of the Lower Extremities. (*Arch. f. Kinderh.*, Bd. vi., H. 4.)

Since the era of antiseptic surgery began osteotomy is to be reckoned as one of the less dangerous operations. The author has tabulated in this paper the thirty-one cases in which he has performed this operation as well as ten cases of osteoclasia, and eleven of osteotomy. The osteotomies were, for the most part, performed upon children from two to eight years of age for rachitis; in eight cases, however, the patients were adults with either *genu valgum* or *varum*. Nine of the osteoclasts were performed upon children for rachitis, and one upon an adult for *genu valgum*. The fracture was made with the hands in all cases excepting that of the adult, Rizzoli's osteoclast being used in that instance, and in all but three of the cases the success was satisfactory. One of the failures was that in which the osteoclast was used, the patient being twenty-three years of age, and the bone failing to give way entirely. In breaking the bones with the hands the limbs were first enveloped in two or three thicknesses of moist linen, then braced, at the point of greatest curvature, against a firmly placed billet of wood, which was also well covered with linen cloths, and the necessary force applied. Of the osteotomies, including the eleven osteotomies, healing by first intention took place in thirty-one, and death occurred in one case, from pyemia. The wedge of bone removed by osteotomy was usually three-quarters of its depth, and taken from the area of greatest curvature. The wound was sewed with catgut, and in some cases a small drainage tube was used, or threads of catgut, or silk, for the same purpose. Healing by first intention was sometimes prevented by bleeding from the bone. To obviate this the limb was raised and fixed, in many cases; in some cases a plaster bandage was used. Ordinarily, after osteotomy, either Lister dressings were used, or sublimate wood-wool dressings. Both were considered very effective. In cases in which osteotomy is performed on account of rachitic developments a recurrence is possible, with requirement for a secondary operation; in other cases one operation usually suffices. No harmful action upon the development of the bones was apparent after these operations. In cases in which the leg was to be osteotomised for rachitis, usually the fibula was broken, while the exsection was made from

the tibia. Beside osteotomy the methods of treatment which are available in cases in which there is deformity of the extremities are (1.) the treatment by mechanical appliances and by elastic bandages; (2), the treatment by *réдресsement forcé*; (3), by *réдресsement forcé* aided by subcutaneous section of bands and ligaments. A. F. C.

Chapman: History of a Case of Foreign Body in the Throat, with Operation for its Removal. (*Med. Record*, Nov. 14.)

A boy, aged six months and twenty-seven days, put a piece of veal bone, which it had picked up from the floor, into its mouth. This provoked a fit of coughing, and the child seemed to be choked, whereupon the mother forced her finger into the child's throat and dislodged the obstacle. This was followed by relief, but in a few hours another attack of difficulty from the piece of bone occurred. A probang was then passed into the stomach, which seemed to relieve the child. The breathing afterwards assumed a croupy character, and dyspnea became so urgent as to require tracheotomy. An opening was made into the trachea, midway between the thyroid cartilage and the upper border of the sternum. After persistent effort the bone was dislodged and brought through the glottis into the mouth. A silver tube was introduced and a steam atomizer kept constantly going. The case did well for some days, but death took place in two weeks from exhaustion that was partially induced by poor nursing.

Dugan: A Large Needle Swallowed and Passed by an Infant. (*Med. Record*, Aug. 22.)

The doctor was called to see a baby, aged twenty-two months, whose mother saw her swallow a needle. The mother was sewing and had placed the threaded needle in the bosom of her dress to use the scissors. Presently she noticed the baby coughing, and turning to discover the cause she saw the thread protruding from the baby's mouth. She made traction on the cord only to let the needle go down. The baby suffered in no way during or since the occurrence. Solid food was directed to be given, with the view of conveying the needle through without coming in contact with the intestinal walls. Two days after the accident the child passed a large-sized needle, one and three-eighths inches in length, with sharp point and black in color. It was corroded.

Erasmus: The Manual Connection of Genu Valgum of Rachitic Origin. (*Gazzetta med. di Roma*, April 15.)

This paper, in addition to a review of the prevailing opinion concerning forcible redress for this condition, recounts a series of experiments made upon the *cadaver* in subjects varying in age between new-born infants and children fifteen years of age. The following are the conclusions which were reached. By means of forced adduction during the first ten years of life with the hands of only one individual used somewhat vigorously, solution of continuity of the heads of the bones, which form the knee-joint, may be accomplished, the epiphysis of the femur being wholly or partially separated, and sometimes that of the tibia; or there may be supracondyloid fracture, and occasionally a rupture or laceration of the external lateral ligament without lesion of the bones. The laceration of the periosteum is usually of no great consequence, and the same may be said of injury to the neighboring soft parts. The same operation upon patients in the second ten years of life, but with the employment of considerable more force may result in detachment of the epiphysis with crushing of the extremity of the diaphysis, in supracondyloid fracture, or bruising of a portion of the condyle, or in fracture of the condyle. The lesions of the bone are accompanied with laceration of the periosteum, of the muscles of the fascia lata, by distention and bruising of the external lateral ligament, by distention and laceration of the sciatic nerve, the external popliteus, or the peroneus. These grave injuries to the elements of the joint explain the mishaps which occur after the use of the forcible redress of the method of Delare and Tillaux, the method of hyperadduction. Another series of experiments was made by the author upon the *cadaver* to show how, with simple hyperextension followed by forcible adduction, upon children in the first ten years of life, solution of continuity may be obtained with great facility in the lower extremity of the femur and sometimes in its upper extremity. In more than the average of the cases thus experimented upon there was more or less complete detachment of the epiphysis, in others there was fracture of the diaphysis at the distance of one or two centimetres from the epiphyseal cartilage. The author agrees with Mikuliez in the opinion that this deformity is due to an abnormal elongation of the internal portion of the diaphyseal extremity of the femur and of the tibia at the knee. For three

years the author has practised among his patients the method of forcible redress, as follows; The patient having been anesthetized is placed upon the table, belly downward. The anterior surface of the thigh, which is associated with the affected joint, is made to rest upon a bag of sand, and the leg is then turned away from the edge of the table. The thigh is next fixed with the left hand of the operator against the bag of sand which is acting as a support, while with the right hand the leg is grasped at its lower third. A forced movement of extension of the knee is then made, repeated, and gradually exaggerated until a slight crackling is heard, a feeling of resistance overcome is felt, and an abnormal mobility in antero-posterior direction realized which is produced by a solution of continuity of the lower extremity of the femur. By this method the grave accidents and inconveniences of *forcible redress* have always been avoided.

A. F. C.

Boeckel (Strasburg): **Resection of the Hip in Coxalgia.** (*Rev. Mens. des mal. de l'Enf.*, May.)

The author has performed thirty-three resections of this character, twenty-one of them before the opening of the abscess. In four cases he found the cotyloid cavity perforated, in eight the head of the femur had disappeared. Since in every case of confirmed coxalgia the head of the femur is devoted to destruction, the pertinent question is put whether this destruction should be left to nature or be accomplished by the surgeon. In thirty-two of the author's cases there were twenty-four recoveries and eight deaths. The causes of death were tubercular meningitis, nephritis, pneumonia, suppurative peritonitis, and pelvic abscess, death not being attributable to the operation, but to the disease. As to the rapidity with which the cases were cured, resection is far superior to the expectant plan. The operation is believed to be a very good one for children but not for adults. His conclusions are:

1. A suppurating coxalgia in a young child will not get well when the head of the femur is luxated or destroyed.
2. The operation of resection is not dangerous of itself; the danger lies in the general condition or the complication.
3. Pulmonary tuberculosis, or tubercular meningitis causes most of the deaths after resection, as well as among coxalgic subjects who do not undergo the operation.

4. The earlier, and the less extensive the operation, the more rapid and perfect the cure.

5. The arrest of development is slight in favorable cases.

6. It is considerable when the operation is long delayed, as well as in suppurating coxalgias which have been let alone in hope of a cure.

7. If a coxalgia has reached a suppurating stage, resection is the surest way to end it speedily and satisfactorily.

8. Contra-indications to resection exist when there is pronounced tuberculosis of an internal organ.

9. Albuminuria, which may be cured after recovery from the operation, is not a contra-indication of necessity.

With certain modifications this operation was approved by Ollier, Leriche, Trélat, and Verneuil, who discussed the paper at the time it was presented.

A. F. C.

Spencer: A Curious Monster. (*Med. Record*, Sept. 5.)

In a recent case of labor, a female child was born which is a curiosity. Child presented by the breech, and was delivered after the usual method. The lower limbs are drawn up to the abdomen, and there seems to be no action in the hip-joint, the knees look more like elbow-joints and are also ankylosed; the feet are an exaggerated form of talipes valgus, and at the union of the sacrum and lower lumbar vertebra there is an opening that looks very much like the anus, through which the end of the little finger can be passed, and, on doing so, bloody serum oozes from the rectum. The child is now three weeks old, and doing well; the opening in the back has nearly closed. The question arises in such a case as to the duty of the physician in keeping such a child alive. It was the doctor's wish to cut the cord and not tie it, but the family objected, as they wished to have it baptized, being Catholics.

Seay: Traumatic Empyema, Produced by a Piece of Grass Swallowed by the Mouth. (*Gaillard's Med. Jour.*, Oct.)

The doctor was suddenly called to see a baby, aged one year and three months, who was spitting blood. On examination, the pulse was 160, temperature 102°, and respiration 40. The lungs were resonant upon percussion, except the lower portion of the right lung which gave a dull percussion note. The breathing was intensely puerile, and there were violent paroxysms of coughing,

during which the child threw up a quantity of bright red blood. In about ten days there was found on the lower and back part of the right lung, below the seventh rib, a soft enlargement of considerable size. Pus was found by a hypodermic needle, and an incision liberated a large quantity. In a few days something was discovered in the opening of the wound which proved to be a piece of grass. The parents stated that the child had swallowed it many months before, but they thought it had been coughed up, as the baby had a violent attack of coughing just after swallowing it. There was a good recovery. The hemorrhage was apparently caused by the rupture of some of the minute arteries of the lung from the ulceration produced by the grass in its passage through the tissue. It was a piece of fantail grass, having a beard and stem each an inch in length; and the time that elapsed from its entrance into the air passages to its discharge through the chest walls was six months and twenty days.

Perry: The Serious Constitutional Effects of Enlarged Tonsils in Children. (*Med. Record*, Oct. 3.)

The tumefied lips, pallid complexion, pigeon-breast, and general debility accompanying large tonsils are not so much due to a pre-existing scrofulous diathesis as to the abnormal state of the tonsils. The hypertrophy of the tonsils is an antecedent and competent, though not an invariable cause of the scrofulous symptoms. Where much hypertrophy of the tonsils exists, the glands barely meeting in the middle line, the breathing during the day is silent and unembarrassed; but when the child is asleep the palatal muscles are relaxed and the tonsils come in contact. This interferes with the passage of air through the fauces at the beginning of inspiration, and it is not until the aspiratory force of the chest is increased that a little air is drawn through. Then the tonsils meet again, and again separate in consequence of still further expansion of the thorax, allowing a little more air to pass. This is repeated several times, so that each inspiratory act is made up of several jerks. Breathing through the nose is prevented by the associated catarrh and swelling of the nasal mucous membrane. A child who suffers from such an obstruction to free inspiration is in a condition of semiasphyxia during ten hours out of twenty-four. Pallor is seen in severe bronchitis of young children, and also in pleurisy, with great effusion in adults. An insufficient supply of pure air is considered a potent

cause in producing that enfeebled condition which predisposes to phthisis; is not, therefore, a deprivation of pure air sufficient to produce the general debility, stunted growth, and fitful appetite seen in these children? How can an embarrassed respiration during ten or twelve hours of each day, fail to produce serious constitutional symptoms? The doctor has records of fifteen cases of enlarged tonsils. Of the fifteen, one or both tonsils were excised in eight cases. In every one of these there was within a week after the operation, a great improvement in appetite, color, and general spirits; and within a few months the gastric troubles ceased, the children increased in weight, and good health was restored. In those not operated upon, no improvement took place. The importance of any condition which, on the threshold of life, arrests development and lowers vitality, and produces an evil effect on all later life, cannot be exaggerated.

Judson: The Treatment of Lateral Curvature of the Spine. (*Med. Record*, Nov. 14.)

If this disease were simply lateral curvature, the reduction of the deformity by mechanical means would be easy. Except in extreme cases there is no alteration of the bony tissue, which in Pott's disease prevents restoration of form. If the trunk simply curved laterally, it would be comparatively easy to support it laterally in such a manner to abolish the curvature. But there is an element of rotation which is present whenever the spine curves laterally, in health as well as in this disease. That rotation is the intractable element is clear when we consider attentively the dried specimen, or the mounted preparation exhibiting lateral curvature and rotation. In treatment, if we could use a gyratory force, or one which would untwist the vertebral column, our mechanics would, indeed, take an important step in advance. As a rule, the doctor declines to treat lateral curvature with braces. In general, good results are obtained by the persistent use of special exercises, in which suspension and the production of extreme lordosis when the patient is suspended, and also when lying supine, are the principal features.

Wilson: Maggots in the Ear. (*Med. Record*, Sept. 5.)

A girl, aged twelve, sought relief for ear trouble. For nine years she had had a chronic discharge from the left ear. She had received no treatment, with the exception

of simply syringing for the purpose of cleanliness. Two weeks previous to her calling at the office, she had been allowed a week's visit to some friends, and, while there, the syringing was neglected. On her return home she complained of severe pain in the left ear. Examination showed a thin and bloody discharge from the ear, and a mass of maggots filling the external auditory canal. Ten maggots were with difficulty removed, after which the pain ceased immediately. The inner third of the canal was entirely denuded of flesh; also, membrana tympani and mucous membrane lining tympanic cavity were gone. The bones of middle ear were so loosened that the malleus and incus were removed from the canal while being cleansed. Entire loss of hearing. The children had been in the habit of sleeping a short time each day under the shade of some trees. A fly, probably attracted by the odor, entered and deposited the eggs from which the larvæ were developed. Not being at home, the syringing was neglected and the eggs allowed to remain. The above case well illustrates the necessity of cleanliness in ears suffering from purulent otitis.

Poynter: Gonorrhea in the Young. (*Med. Record*, Nov. 14.)

Several years ago the doctor had two cases of this disease in a boy of three and a girl of five years of age, brother and sister. They had a colored nurse, a girl sixteen or seventeen years of age, who was found to have given the disease to the children. It was detected in both the children at about the same time. The girl acknowledged that she had produced erection in the little three-year old boy by manipulation, and then had him *res in re* with herself. Of course she communicated the disease to him, and by making the little sister submit to the same process of attempted copulation with the boy baby, she was in turn inoculated. Two years afterward the little boy suffered most intensely from stricture, and had to be treated by dilators, etc.

McKee: Intracranial Cephalhematoma. (*Med. Record*, Sept. 26.)

The word "cephalhematoma" means an effusion of blood occurring in newly-born infants, forming a tumor of the head. The intracranial variety is divided into (a) those situated between the skull and dura mater; (b) those occurring in the arachnoid cavity. As causes of

intracranial cephalhematoma may be enumerated most of the causes of the external variety, as, for instance, the reception of some injury to the child during parturition. There are many instances where the external variety occurred, the labor being light. They are mentioned in breech cases, and, in Vienna, have been noticed on those delivered by Cesarean section. It is quite possible that through the crushing of the parts of the head together during delivery, there occurs tearing of the periosteum and bone bloodvessels. This pressure being released, the parts are again suddenly freed. Emptied by the diapedesis, caused by the crushing which they had undergone, hyperemia and engorgement are the results of the removal of this pressure. Thus, from Nature's horror of a vacuum, we have a sudden rushing of blood. The sources of the hemorrhage are probably the tender bloodvessels. These enter the bone from the dura mater, and are, immediately after the release of the pressure, overfilled and ruptured. Possibly it might be due to a varicose condition of the vessels. The hemorrhagic diathesis might be a cause. The tendency in some instances is probably inherited. In cases of fracture of the bone, cephalhematoma on the dura mater may be due only to the hemorrhage from vessels wounded by the broken edges of bone. Blood may sometimes transude through the imperfectly ossified skull of the child. The direction of the pressure during labor, and the greater porousness of the outer than the inner surface of the skull, accounts for the excess of the extra- over the intracranial variety. The usual causation of the former pressure is quite adequate, if unusually forcible, to cause the latter. The diagnosis of intracranial cephalhematoma depends wholly, of course, on the symptoms of brain pressure which it is liable to occasion. These are twitchings, convulsions, stupor, or paralysis. The external variety is, of course, much more easily diagnosed. While the prognosis of the extracranial variety is good, that for the intracranial is bad. Death occurs most frequently from brain pressure, or from necrosis or caries of bone leading to perforation, thrombosis of the cerebral sinus, extension of the inflammation to the meninges and brain itself, and pyemia. Idiocy is one of the results of internal cephalhematoma. The cure of internal cephalhematoma is analogous to the repair of the external. The effusion becomes encircled by an osseous ring. Twenty cases are all that can be found in medical literature on this subject.

Hearnden: Tracheotomy in Infants. (*Lancet*, Oct. 17.)

The writer in a short article on the subject quotes a number of successful and unsuccessful cases under two years of age, and reports three cases of his own.

Case one was eleven months of age; the operation was done for asphyxia from a foreign body, "an orange pip" which was coughed up through the wound, the patient making a prompt recovery.

Case two was aged twenty-two months; the operation was done on the fourth day for laryngeal diphtheria. The case made a good recovery though the tube was not removed till the thirty-eighth day.

Case three was twenty-one months old. Membranous croup was the disease requiring relief. Death took place forty-eight hours after the trachea was opened.

Rivington: Common Carotid Artery Wounded by a Fish-Bone. (*Lancet*, Oct. 31.)

A boy of nine was admitted to the hospital six days after swallowing the bone. A probang was passed, but the next day he was worse, fever, stiffness of the neck, inability to swallow existed, and a tender lump was found on the left side of the neck at the level of the cricoid cartilage. On the ninth day he had two small hemorrhages, and on the eleventh a profuse one. The carotid artery was cut down upon and tied above and below the wound. The patient died two days after the operation from abscess of the brain which probably had begun to form before the operation.

Swan: Condylotomy by the Osteotome for the Treatment of Knock-Knee. (*Medical Press*, June 26.)

In a paper read before the Academy of Medicine, in Ireland, a report was made upon one hundred and twenty-nine knees, in sixty-eight persons, operated on for genu valgum by Reeve's method of condylotomy. The ages ranged from three and a half to nineteen years. In nineteen cases both knees were operated on simultaneously. It was futile to avoid entering the joint. Two cases suppurated, but all recovered with useful limbs. In the discussion which followed the drift of opinion was decidedly in favor of McEwen's operation to that of Reeve's, as simpler and less dangerous. Nearly all the surgeons who spoke on the point thought it was impossible to do condylotomy without opening the joint.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

MAY, 1886.

[No. 5.

Original Communications.

IRREGULARITIES OF LOCOMOTION IN
CHILDREN.

BY NOBLE SMITH,

Surgeon to All-Saints Children's Hospital, London.

It will probably be conceded that irregularity of walking in a child generally indicates some abnormal physical condition. It may result perhaps simply from general debility, but far more often it depends upon the presence or co-existence of some local mischief.

Disease of the spine; disease of the hip, knee, or ankle joints; knock-knees; bowed legs; laxity of joints; pain or difficulty resulting from badly-shaped boots or other badly-fitting garments; abnormal contractions of muscles: paralysis of muscles; congenital dislocation of hip joint, and asymetry of form, are the chief causes we meet with.

There are, of course, other causes which may retard or modify the walking powers, as, for instance, the cicatrix from a severe burn, or the effects of other severe injury,

but I am here rather referring to the causes which develop insiduously, and of which the difficulty in walking is probably the first symptom.

Caries of the spine is a disease which often makes considerable progress before it is detected. A patient may even die from this disease, without its nature having been detected. A child was once admitted into Guy's Hospital with symptoms which were attributed to croup; he died in a few hours, and it was found that the only disease present was caries of the spine, which had produced an abscess which burst into the throat. This disease may produce lameness. Its inflammatory action may cause irritation of nerves proceeding from the spinal foramina, and thus [from pain alone in peripheral parts, or from muscular disability, the walking powers may be interfered with. We all know how in advanced cases of caries the functions of the spinal cord may be interfered with, we are familiar with the spasmodic twitchings, the violent jerkings which the legs are apt to undergo, irrespective of the patient's will. We also are aware how this disease may paralyze the limbs entirely, and sever all control by the patient of his excretory functions, but we may easily overlook the slighter grades of these evils and fail to recognize in certain defects of the walking powers, the early symptoms of this serious surgical disease.

Disease of those vertebræ to which the psoas muscles are attached, or encroachment of an abscess within the sheaths, may lead to morbid action of these muscles, pain or difficulty in ascending and descending stairs being prominent symptoms. Subsequently the muscle on one or both sides may become permanently contracted, a condition which is beyond the power of the knife, although within the range of mechanical extension.

The position of the body when caries has advanced beyond its earliest stage, the forward bending and proping of the trunk by the hands upon the thighs is too well known and too distinctive of the mischief to need description here, although it greatly modifies the manner of progression. Upon the other hand some children suffer-

ing from this disease hold themselves in a remarkably upright manner, both in sitting and walking, and are especially noticeable for the stateliness of their gait.

The peculiarities of progression which accompany spondylolisthesis have been carefully described by Neugebauer, and do not bear upon the present subject, nor do I think it necessary to discuss the manner of walking in paralysis of dorsal and abdominal muscles respectively.

Weakness of the spine, and various forms of lateral curvature, give rise to such a great variety of ways of walking, that it would be very difficult to describe them well, and it must suffice to refer to such a cause as one which may occur.

Disease of a hip joint is so frequently first indicated by a limping movement in progression, that its character is quite well known and usually recognized. Before a distinct limp, however, I have frequently found that a child complains of weariness in walking, and its manner has been ascribed to laziness or general illness. The manner of walking in this early stage will be found to consist simply or chiefly in a *favoring* of the affected leg. When pain supervenes and we analyze the cases carefully, we find a variety of modes of halt in correspondence to the seat of pain, whether occurring on the inside of the knee, or in the joint itself from reflex pain in the obturator nerve, or upon the front of the knee and inner side of the ankle from pain in the anterior crural, or behind and at the inner side of the knee, at the outer and inner side of and behind the ankle, from irritation of the sciatic.

I have also met with several cases in which the only pain at first has been just below the centre of Poupert's ligament from the crural branch of the crural nerve. The latter pain causes a peculiar bending forward of the body in walking, which, I think, differs from most other lamenesses, and indicates, I should imagine, that the disease exists chiefly in the front part of the joint.

It is perhaps well here to describe the peculiarities of gait in cases of congenital dislocation of the hip joint.

The movement which is peculiar to this affection is a rolling, somewhat labored gait, although generally rather rapid. There is distinct lameness, although there is no pain. This applies to the cases in which the dislocation is double, when, as usually occurs, the displacement is upwards and backwards upon the dorsum of the ilium. The body is placed in a position of considerable lumbar lordosis. The thighs are inclined inwards, and abduction is very limited, and the toes may turn inwards. In commencing to walk the body is thrown to the side of the progressed foot upon the front part of the foot, and then the other foot is lifted with an effort, and brought forward.

When one side only is affected, there is less irregularity of progression, although its nature is similar. I have a case under treatment in which one leg only is affected, and in which the displacement is directly upwards, there is much less difficulty in walking and that was chiefly dependent upon the consequent shortening; a defect which has been almost entirely relieved by equalizing the length of the legs. The patient generally walks better when he walks quickly. The degree of difficulty varies greatly.

In cases of knock-knee, when the deformity is well developed, there can be little difficulty in forming a diagnosis. The walk is very shuffling, the knees are frequently bent, the body leaned forward and the toes turned in, one knee crossing the other as one or other leg is advanced. The foot may be flat and inclined to valgus, or a varus position may exist. Turning the toes in is frequently the first point noticed in the early stages of these cases. In slight cases when the legs can be fixed in a straight line by means of splints, the child almost invariably walks with the toes turned in, as this way of walking is far easier when the knees are kept straight; but, as a rule, it need not cause anxiety, because the turning of the leg when splints are firmly fixed, takes place generally at the hip joint, and may easily be corrected subsequently when the splints are discarded; but

in some cases there is a twisting of the leg below the knee which requires more attention. It is different without splints, if the knee joints happen to be lax; a common condition because the twisting takes place then at the knee, and if not corrected may lead to permanent deformity.

In cases of club-foot or weak ankle it often happens that this laxity of the joint exists, and then it becomes necessary to prolong the foot apparatus by a stem to the thigh with a free joint at the knee, a very light instrument being sufficient to keep the knee joint working in its natural direction. This weakness of a knee joint seems sometimes to be due to a congenital deficiency, and may accompany congenital contractions or deficiencies in the foot or elsewhere.

In cases of bowed legs the patients are obliged to walk with the feet more or less apart, and a straddling manner of progression is adopted. The curving of the leg bones causes the sole of each foot to present inwards as well as downwards, and in order to bring the soles flat to the ground, the feet have to be separated widely. The legs of a child when walking thus forms an arch, and it is often thought that the whole of the lower extremities are curved. Of course in some cases the femurs are bent outwards also, but as a rule the appearance just described depends upon the curvature of the leg bones alone.

Contraction of muscles is often a cause of irregularity of walking, and may prevent walking entirely. A child who, at six years of age, had never walked at all, I found with its feet distorted in the equino varus position, the knees also contracted, and the thighs contracted upon the trunk. After correcting the first deformities by means of mechanical pressure, I had to divide the contracted tensor vaginæ femoris on each side, the child was then able to walk a little, but still carried the body far forwards and there was much lumbar lordosis, but he is gradually improving.

Contraction of the adductors causes the patient to walk as if the legs were tied together. But when only one leg

is affected, the symptoms may be difficult to diagnose. Moreover there may be pain caused in the thigh where the adductor longus is attached, and I have known such a case to simulate hip-joint disease. The pain would complicate the manner of walking, causing limping; contraction of one foot in the equinus position, causes the patient to walk more or less upon the front of the foot, the knee is bent and the patient limps; after some time the knee may give way inwardly and the head of the tibia sink backwards. This may lead to a condition of hyperextension, which may be more difficult to overcome than the deformity of the foot. When the foot is only contracted into a right-angled position the symptoms are not very distinct to a casual observer. Pain in the ball of the great toe is often the only symptom complained of, or there may be also fatigue in the whole foot or only in the instep. Upon examination of the foot the most conspicuous sign will be contraction of the extensor longus digitorum, and I have known the tendons of this muscle divided in the belief that it was the cause of the trouble, whereas this depended upon the contraction upwards of the heel, and section of the tendo Achillis is the remedy, and an effective one.

Contractions of the feet in other directions have their own peculiarities, which may be studied in individual cases.

In paralysis the peculiar dragging of an affected leg is well known, it of course varies with the degree of disability. When the flexors of the thigh happen to be affected, the difficulty is great, for the whole limb has to be thrown forward by an effort of the trunk, and a considerable curvature of the spine to the opposite side will be produced in the lumbar region. All these errors of locomotion may be relieved or removed by mechanical apparatus, and in the last mentioned cases great help may be afforded, and relief to the spine given by the use of an elastic cord extending from the waist upon the sound side to the knee of the paralyzed limb, supplying to some degree the lost flexors.

Pseudo-hypertrophic paralysis is another occasional cause of difficulty or inability to walk in children.

In diagnosing the cause of irregular locomotion, the surgeon should always examine carefully the comparative length of the limbs. Shortness of one or other limb is a very common condition. This may be the result of infantile paralysis which may still be present, or may have wholly or partially been recovered from; there may have been an injury to an epiphysis, retarding development in length, or some abnormal action upon the longer leg may have caused that one to grow in excess, or there may be no apparent cause.

Badly-shaped boots are a common enough cause of lameness or difficulty in walking, and tight garters, or other articles of dress are not to be forgotten as possible impediments. Flat feet, distorted toes, bunions, and other local troubles may also give rise to walking troubles, which should be borne in mind in forming a diagnosis.

I cannot consider this paper otherwise than a mere sketch of a subject which might be greatly elaborated. It is not always easy to obtain sufficiently accurate information from young children as to their feelings, and therefore the study of their objective symptoms becomes a matter of considerable importance, and the peculiarities of locomotion under various modifying circumstances occupy, it seems to me, a prominent position among the latter.

ON HIP DISEASE IN CHILDHOOD.

BY G. A. WRIGHT, B.A., M.B., OXON., F.R.C.S., ENG.

Surgeon to the Children's Hospital and Assistant Surgeon to the Royal Infirmary, Manchester, England.

[CONTINUED FROM PAGE 164, MARCH NUMBER.]

Modes of Excision.—Various incisions for removal of the upper end of the femur have been advocated. The original one was, I believe, a T-shaped incision of which

the vertical part extended along the posterior border of the great trochanter and the transverse one across its upper margin. L- and V-shaped incisions have also been recommended, while Gross advises a semilunar flap of the gluteal muscles to be made, the convexity of which is to be downwards. Again, incisions over the posterior border of the trochanter, over the anterior edge, vertically below the anterior superior spine (Parker), over the front of the capsule, and straight down over the middle of the trochanter, as well as others have been employed. Of these I have only tried four, that over the trochanter usually being in the middle line and slightly concave forward is the one I usually adopt. I have also on one occasion excised by the more anterior incision, and twice by the one over the part of the capsule, also once or twice by incision over the back of the articulation. I see no advantage in any of the others over the one extending downwards for about three inches, more or less according to age and the extent of the disease, along the middle of the trochanter. I can imagine that where it is proposed to remove a large part of the pelvic wall, a T-shaped or flap operation may be desirable, but I have not had occasion to try it.

Next the soft parts should be divided vertically above the trochanter and the capsule opened freely, if this has not been done by the first incision. The joint should then be explored with the finger.

As regards the management of the deeper parts and the periosteum, and the question of subperiosteal excision, it is, I think, advisable not to remove any of the soft parts unnecessarily. I prefer to make my first incision well into the cartilage of the trochanter and then, either with knife or raspator, to separate the muscles attached to it. I have sometimes left portions of cartilage behind attached to the muscles, and sometimes have peeled off the whole trochanteric cartilage and left it *in situ*.

The next step is to separate the soft tissues from the bone on the inner side, stripping back the periosteum as far as it exists as such. The finger should then be used

to pass round the bone and feel that the upper end is free; next, still using the finger, as a guard at the inner side of the bone, the femur should be sawn through just below the trochanter margin with a key-hole saw. Some part of the trochanteric epiphysis is usually left behind.

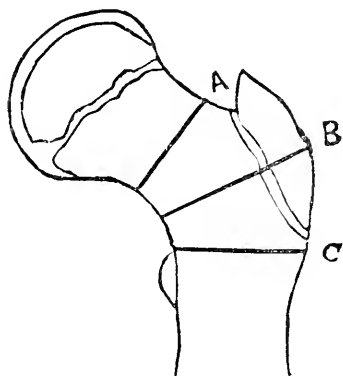


Diagram showing the lines of section in excision of the hip (outline copied from Barwell.)

A. Removal of head and part of neck only; B. the usual line of section; C. line of section where the disease is more extensive.

Thomas once removed the head and neck by a wedge section.

The upper extremity of the bone is then readily pried out with the finger or raspator. The acetabulum should be then examined and any sequestra removed.¹ If there is a large carious surface it may be gouged or scraped with a Volkmann's spoon or left alone. I think it is well to remove any rough or semi-necrosed bone, but I doubt the possibility of being able to remove all the disease without greatly adding to the severity of the operation where there is extensive inflammation without necrosis, nor do I think such treatment desirable.

The upper end of the femur should be examined to see if the whole disease has been removed, if not, a further section should be made, and this may be carried a considerable distance down the shaft; six inches have been removed with a good result and but little shortening, by

¹ Hancock and Erichsen removed large portions of pelvis, but these apparently were actual sequestra.

an American surgeon. Here it is well to point out the danger of the practice of thrusting the head of the femur forcibly out of the wound before sawing it through, instead of dividing it *in situ*.

Several cases of fracture of the shaft of the atrophied fatty bone have occurred. I had one case myself among my earlier operations, and I have also separated the lower epiphysis in an infant in manipulating the femur during incision of the joint. An additional objection to this practice is the ease with which the periosteum may be thus stripped off the inner aspect of the shaft and so necrosis may occur.

The operation is much more easily and safely done in the way I describe, and requires less violence to and less division of the soft parts, the finger is quite as good a guide as the eye to the condition of the bone.

The subperiosteal method about which so much has been written is one that should be followed, in so far that the bone should be well cleared before it is removed and no unnecessary muscle, etc., taken away. As to making a formal dissection of the periosteum from the whole of the part removed, I cannot understand how it can be peeled off from the cartilaginous trochanter in young people, and there is no fear that the muscles will not require an attachment to the bone if the transverse incisions are not made too freely. The periosteum of the neck of the bone is separated by the disease or destroyed, and the section should not be made in ordinary cases sufficiently far below the great trochanter to endanger the periosteum of the shaft. Professor Sayre's plan of stripping the periosteum with tenax I have not tried, nor can I quite understand how he finds a distinct periosteal sac into which to put it.

Usually no vessels require ligatures though there is sometimes free oozing of blood. A suture may or may not be put through the edges of the wound to partly close it, it is not a matter of great importance; if the case is one with old standing sinuses I prefer to leave it quite open, and in any case a large drainage tube should be

passed deep into the cavity of the joint. Any sinuses or abscess cavities should then be scraped out and well drained before applying the dressing. It will often be found that a distinct membranous layer of lymph lines the cavity of the articulation, but there is hardly ever anything like the thickness of granulation tissue so often seen in the knee and other joints.

There is not, I think, any advantage in removing all the head of the bone and leaving the trochanter. In many cases the head of the femur is so far destroyed that it would be impossible to do less than take away the trochanter, while, as Mr. Henry Smith following Sir W. Fergusson has pointed out, the trochanter if left tends to block up the orifice of the wound and prevents the free escape of discharge and debris of bone, and thus interferes with one of the main objects of the operation. The Clinical Society's Committee, however, advised that the trochanter should be left unless diseased, or unless there is extensive pelvic disease.

Where intrapelvic abscess exists Hancock advised trephining the acetabulum, and his advice is no doubt good. Examination per rectum would enable the diagnosis to be made if this condition was suspected. Sayre recommends chiseling away all discarded acetabulum down to the level of the detached periosteum on the internal surface, but in most cases it appears to be unnecessary to do this.

Many operators recommend piecemeal removal of the bone in cases of excision in order to save muscular attachments as much as possible; among these the late Mr. Gray advocated breaking up the diseased bone with a steel probe and then extracting the fragments. I do not like the plan for it implies probable imperfect drainage, and fragments are apt to be left behind to necrose.

As regards the use of antiseptics they should, of course, be used in cases where there is no external wound. Of the use of chlorate of zinc I am much more doubtful, it is recommended by some surgeons to use a solution of forty grains to the ounce. I can only say that having seen its

effects upon the tissues of other parts in children I should not like to employ it. I have seen extensive sloughing follow its use, also in two cases in which I used a twenty-grain solution to wash out the sinuses and cavity, it was followed by much greater bleeding and subsequent alarming shock than in any other operation, and I cannot think its use free from danger. Although in one of these instances it did undoubtedly prevent putrefaction, I do not advise its use. The most convenient form of dressing afterwards we have found to be a thick pad of wood-wool over a thin layer of wet gauze, the wood-wool pad may be made triangular or pyriform so as to fit round the thigh. With wood-wool very few dressings are required.

Following Mr. Hare I prefer to have the extension put on before the operation, so that the weights, or better, Bryant's splint, can be applied at once before the patient is put to bed, and I cannot agree with Professor Gross's view that extension is painful or mischievous. The shock of the operation is often somewhat severe, but soon passes off under the use of opium and stimulants.

The subsequent management of the case requires some special remarks. I have found it exceedingly difficult always to keep the wound aseptic, and must confess to many failures in this respect; still, as in my experience, comparatively few cases can be treated in hospital till the wounds completely close. They are under somewhat different conditions to other patients. It is, however, a great gain if the wounds can be kept sweet even for a time.

I am at a loss to know what Professor Gross's remarks mean, viz.: that "one of the difficulties experienced after the operation is to keep the end of the femur in contact with the acetabulum."

Any attempts to do so would surely add to the pain of the patient and tend to increase the disease in the acetabulum, as well as add to the necessary amount of shortening and make ankylosis more probable.

The after treatment of cases of excision simply consists

in dressing and in keeping the limb quiet and in good position. This may be done by various means, of which the best one, I think, is simple extension by a weight (the weight may usually be reckoned at one pound for each year of the child's age from two to six; six pounds is generally enough up to twelve years of age, after which more may be added) with or without a long splint on the opposite side, and a double Bryant's splint, which has many advantages in securing "parallelism of the two limbs," and in the ease and comfort with which the patient can be moved.

Mr. Barwell lays much stress upon the necessity of not letting the operation wound close too soon, and of the risk of insufficient drainage setting up osteomyelitis, and he is, of course, right. Where any bagging of pus occurs counter openings should be freely made. I have found it a good plan in some bad cases to keep the patient tilted over so as to lie almost upon the diseased side, and in other cases, where there has been much discharge, and a difficulty in keeping it sweet, I have kept the joint cavity constantly irrigated through openings at the back and front, with good results.

I am sure that in many cases the use of elastic pressure, by means of a Martin's bandage, has been of great service, especially where any indolent thickening of the soft parts remain, or there is a tendency for the sinuses to be flabby and sluggish.

(TO BE CONTINUED.)

REPORTS, WITH COMMENTS, OF TWENTY-ONE CASES OF INDECENT ASSAULT AND RAPE UPON CHILDREN.

BY JEROME WALKER, M.D., BROOKLYN, N. Y.

Liable as physicians are to be called upon at any time to decide whether or not young girls have been criminally assaulted, it is a matter of great moment that they

should be prepared to decide fairly, yet an experience of several years as physician to a Society for the Prevention of Cruelty to Children has taught the writer that it is difficult oftentimes to justly weigh the evidence presented, to honestly examine facts, with no undue sympathy for the child, or antipathy for her reputed assailant. Of course there are a few brazen-faced children whose stories are manifestly false.

Owing to the natural sympathy of both judge and jury for ill-treated children, a prevalent respect for innocence and purity, as well as a current dislike for unnatural crime, a man charged with indecent assault, rape, or an attempt at rape upon a child, though he has good legal talent to defend him, stands a poor chance of acquittal if a reputable doctor swears that the child has been tampered with.

It will not do to give the child the benefit of doubts, for that is injustice to the alleged assailant, who may be a deserving and innocent man. Injustice may mean for him a conviction—*i. e.*, a sentence to prison for from one to twenty years.

It behooves medical men, therefore, to ponder this side of the case, lest by their carelessly-arrived-at conclusions they wrongfully swear away a fellow being's liberty, and disgrace and damage both the man and his family. It is not too much to say that such conclusions have been presented in court with the results as above stated.

Before appearing in court, or before a grand jury, "to tell the truth, the whole truth, and nothing but the truth," the doctor should know :

1st. That, at the present time, *any* sexual penetration, however slight, into the genital organs of a female child, is legally regarded as sufficient to complete the crime of rape.

2d. That sexual intercourse with a female under the age of ten years, *with or without* her consent, is rape.

3d. That sexual intercourse with a female over the age of ten years is rape, if "through idiocy, imbecility, or any unsoundness of mind, either temporary or perma-

ment, she is incapable of giving consent; if at the time the act is committed, she is unconscious of the nature of the act, and this is known to the defendant; if her resistance is forcibly overcome, or is prevented by fear of immediate and great bodily harm, which she has reason to believe will be inflicted upon her; or is prevented by stupor, or by weakness of mind, produced by an intoxicating, narcotic or anesthetic agent, administered by, or with the privity of the defendant."

4th. That an indecent assault is putting the hands on the privates of a child, or feeling of her legs even. The greatest punishment at present, in this state (New York), for this offense is one year's imprisonment.

The importance of medical men using, when in court, plain and generally understood language, and of knowing that slight penetration is sufficient entrance to constitute rape, and that laceration of the parts is seldom seen, is best exemplified by the following incident which occurred recently in a police court. A case of alleged rape upon a little girl by a man was being inquired into privately in the office of the justice.

The principal sign upon the child of the commitment of the act was an intense redness in spots of the mucous membrane of the vulva, with two or three small abrasions.

The doctor who first examined the child after the crime was said to have been committed, when asked by the lawyer of the alleged assailant, "Well, doctor, tell us what you found by examination," replied, "the parts were contused and lacerated; there was much hyperemia and——" "Yes, I know, doctor; but what is laceration?" "It means a forcible cutting or tearing." "Do you mean to say, doctor, that the parts were cut or torn? Was there any blood?" Here the lawyer read from a standard authority a long description of a typical case of rape, in which there was rupture of the hymen, laceration, escaped blood, and inflammation. "Do I understand you to say, doctor, that you found what is here described. This book is a recognized authority, is it not?" "Yes." "Well, was there, now, any laceration or

tearing in this case, doctor, after all?" "No, sir; I don't think there was." So, the doctor, relying upon his reservoir of technical terms, and not appreciating the value of simple and plain testimony, is muddled by the more astute lawyer, and the case is damaged, even the district attorney failing to help the unfortunate doctor by his questioning or in his summing up.

To arrive at conclusions intelligently one should not only be able to interpret signs aright, but also to sift testimony and fathom motives. The following queries may assist us:

1st. Is the child's story probable, possible? What motive is there, if any, for her falsifying?

2d. What motive, if any, is there for one or both parents, or any relation or friend, abetting the child in her statements?

3d. What was the motive that induced the alleged assailant to attempt connection? Is his story probable?

4th. What physical evidence is there that the child has been injured or penetrated?

5th. Has the injury found, resulted from attempted connection or in some other way? Is the discharge leucorrhœa or gonorrhœa?

At this point it is not out of place to say: 1st. That rude handling of the privates of a child, unnecessary exposure, and even broad unguarded questions may induce certain children to think of prurient subjects, or may excite improper desires. 2d. That careful inspection of the parts and, if necessary, gentle handling should be resorted to before any speculum or other instrument is used, else, in court, injuries alleged to have been found will be ascribed to the doctor's examination. 3d. Examination of both child and alleged assailant—where there is reason to suspect gonorrhœal contamination—should be had as soon as possible after the act for fear that cleansing of parts will wash away proofs of disease. How apparent absence of disease may affect cases will be seen further on. To illustrate the kind of cases that may be brought to the doctor for his opinion,

and the difficulties which sometimes lie in the way of his giving a just one, the following outlines of cases, known to the writer (unfit for perusal except by those interested in medico-legal matters), are here submitted with comments; the excuse for such details being, that articles upon cases of this character are quite rare even in medico-legal journals. In describing real or alleged assaults, for manifest reasons, as far as possible, the language of the children interested has been given.

CASE I. *Rape upon a Girl of Six Years; Gonorrhoea Communicated.*—Child rather timid and backward. The first intimation of any trouble was on April 28th, when mother noticed that the child walked lame; questioning her she stated that her uncle (mother's brother) "had told her to get on him, and if she said anything about it he would throw her on the stove." The mother then finding some discharge from the privates, was frightened and took the child to a drug store, and then to a doctor. Being told that the child had a disease she sent for the uncle who admitted he had been with the child. On May 2d, I first saw the girl. There was a profuse yellow discharge from the privates, much soreness of the privates, some enlargement of the inguinal glands, but apparently no abrasions. Same day I examined the man at the jail, found that he had gonorrhoea which he admitted he had contracted some six weeks before in Liverpool. He confessed that he had been with the child, but at first said, "because she wished him to," then persisted "that it was because he was drunk." The judge sentenced him, notwithstanding, to twenty years imprisonment.

In this case there were no physical evidences of penetration, and the soreness, swelling, and discharge might have resulted from a severe catarrhal inflammation. The gonorrhoea of the man was presumptive evidence that the child's story as to the origin of her trouble was correct, still if the man had not admitted the act, and had attempted, through a shrewd lawyer, to disprove the child's story and to show that her discharge was leucorrhoeal in character, it is a question whether he might not

have succeeded at least in reducing the term of his sentence. The hymen, if I remember aright, was intact. Whether the man believed, as we are told some do, that connection with a child would cure him of his gonorrhea, I could not ascertain. The child agreed to his proposition on account of his threat, and because she trusted her uncle whom she seemed to be fond of.

CASE II. *Rape upon a Girl Three Years of Age; Gonorrhea Suspected.*—Nov. 2, 1882, I examined the person of K. M., aged three years, upon whom rape was said to have been committed, October 26th or 27th, by a man in the employ of the woman who had charge of the child. Examination revealed slight redness in right groin, absence of hymen, even no remnants of one, and a slight excoriation at fourchette, vagina was open, quite distensible, and contained a small quantity of pus. Upon the drawers and night-gown were dried spots of purulent material. The child walked with but little difficulty. Mrs. L., who had charge of the child, said that on Saturday evening, October 28th, Mary seemed all right when she was bathed, but on Monday evening she “smelt very strong,” and had some discharge from her privates, enough to stain her drawers; that on Monday and Tuesday the child walked queerly and scratched her privates, which she was not in the habit of doing. The child told Mrs. L. that “Billy took something out of his pants and put it up here,” pointing up under her clothes. Tuesday, Mrs. L. showed the stained drawers to the sister-in-law of this Billy, a married woman, and the child repeated the story to her. This woman said, or was reported to have said, that “Billy had tried that before.”

On Tuesday evening, October 31st, Mr. L. was shown the drawers and told the story. On Wednesday the child was taken to a doctor, who told the police authorities that he believed rape had been committed. The doctor stated later on, in court (and it was on his testimony mainly that the assailant was sentenced for ten years), that on this first examination of child there was a profuse yellowish discharge, the labiæ were swollen,

and the vagina admitted readily for about an inch a small speculum. He ordered that the parts be cleansed, and that astringent washes be used. The following out of these directions probably accounted for the conditions of the part on my examination, November 2d.

November 9th, feeling that more should have been ascertained at my first examination, I examined a second time with same results as before. At this visit I dissolved out some of the dried material from the night-drawers and submitted it next day to Prof. E. S. Bunker, at the Long Island College Hospital. He found only epithelial cells in abundance, some bacteria, and hammer-headed bodies (with, in some instances, tail-like appendages) not unlike dead spermatazoa.¹

November 14th, examined Billy at the jail; found no evidences of gonorrhea, or any unusual cleanliness of parts that would lead one to suspect that washing and injections had been resorted to, to remove evidences of discharge.

Remarks.—In this instance there was a doubt in my mind as to child's having had gonorrhea, and as to the man's having committed rape. At the time of my examination—six or seven days after act was said to have been committed—there was but slight redness and excoriation, and but little pus. Only two or three days before my examination, the other doctor had first seen her; and the rapid relief from great soreness, swelling, and discharge, following his remedies makes the case look like one of leucorrhea. Of course the results of my examination of the man, twenty-one days after the alleged act, was more in the line of negative evidence, but a thorough examination of his privates, with the absence of any history of gonorrhea, were in his favor. The child was of such an age and character that she might readily be discredited. The room and house in which the child lived were dirty, and the statement made by her guardian that the child was regularly washed, and

¹ Perhaps trichomonades—mentioned in Woodman and Tidy, *Forensic Medicine*—as liable to be confounded with spermatazoa.

that the child had never scratched her privates before Monday, the 30th, might well be disbelieved. Mixed up in the case, also, was the rumor that the man had borrowed money of the child's guardian and had not returned it; that he had, when arrested for stealing, along with some of her relatives, "peached" on them and so got clear himself.

CASE III. *Rape (?) upon Girl of Twelve Years by Father; Punishment for Indecent Assault.*—November 12, 1882, I examined this girl with whom it was said father had had connection. There was no hymen. On the inner edge of the right side of the vaginal opening were three or four granular-looking elevations; otherwise the parts were normal, with the exception of a general diffused redness. There were no evidences of pus, any excoriation, or contusion. This condition led me to believe, taken in connection with the girl's story, that local injury, perhaps sufficient to break the hymen, had been done the parts, perhaps in the attempt by the father to introduce his penis.

The girl stated that an attempt at connection had been made but once; that he did not succeed in even putting his person against her privates, for, having thrown her on the bed and uncovered himself and her, she cried, and he withdrew.

Remarks.—The man was sentenced to eighteen months imprisonment, on three charges—for indecent assault, as there was not in the case any physical evidence of rape, though my belief was rape had been committed, perhaps unintentionally. The girl may have given consent, and her statement to me seemed to be an attempt to shield the father. The father's willingness to handle the child's privates, and the general redness found, would seem to indicate guilt. The absence of hymen may have been congenital.

CASE IV. *Alleged Rape upon a Girl of Ten Years by Her Father.*—December 30, 1882, examined the girl; found that there was no hymen, but not the slightest evidence of an injury to the parts. The story given by the aunt

was, that about two months previous to the examination, when the child's mother died, the father began to abuse his children and drove them out of doors. They were then taken care of by a neighbor. Two weeks ago, on the promise of the father to care for the children, they were taken to him at his boarding place. The ten-year old girl then slept with him. "During the first night," the girl stated, "he got on me, and, when I told to get off, he said shut up; don't you tell any one of this, or I'll kill you." The aunt then said "the next morning the child wiped blood off her privates and her night-gown." This the girl corroborated in a hesitant sort of way, but added, in answer to a question, that "she didn't feel sore, and it didn't hurt her to move around." Here the aunt interrupted with, "Mamie, tell the truth now; you know you told me that you had to lie down all next day on the lounge." The girl answered, "I lay down because I had a headache, but it didn't hurt me to get around at all." This case was not proceeded with, first, because there was no evidence of physical injury to the child. If the child had been injured enough to bleed, probably some severe result would have followed;¹ second, because the child's story to me did not tally with what the aunt and the father's boarding-house keeper said she told them; third, because there seemed to be a motive to injure the father, in the eagerness of the aunt to have him punished for maltreating his children, and on the part of his landlady because he owed her some board money.

CASE V. *Rape upon Five Little Girls by a Man; Gonorrhea Communicated.*—July 3, 1883, examined five little girls, aged from four to eleven years. The four

¹ There is the record of a tramp inveigling a girl of four years of age into a privy and keeping her there for some time. When he left her, and the child was found, she was in a deplorable state, her privates and under-clothing covered with blood. The medical expert called in to examine the child found that there had been "no penetration," and that "no rape had been committed" (this decision was given before any penetration, however slight, constituted rape); but the child had gonorrhea. The doctor's theory was that the man had gonorrhea when he attempted to have connection, chordee occurred, the frenum gave way, and bleeding resulted, and the man merely rubbed his parts against the child. The theory was corroborated by an examination of the man.

youngest had a profuse yellow discharge in and about the privates, intense redness of the mucous membrane, and, in two of the children, excoriations on the inner sides of the labiæ. In all, the hymen seemed to be absent. With the oldest child there was no pus or evidence of inflammation, probably because she had not been with the man for five weeks, at which time he was probably free from gonorrhea. She admitted that she had been with him five times before that, once in bed, the remainder of the times she sitting on the edge of a chair. She had known some girls to be with him thirteen times. The remaining four children examined, had been with the man within a week or two. Their stories, substantially the same, were as follows: The man, an elderly person, living by himself, kept a small store, in the rear of which was a bed-room. Into this room he enticed them by gifts of money and bread and honey, and then placed them on a chair or window-sill and rubbed his penis against their privates. The mothers of the children, noticing stains upon the body and bed-clothing, examined the children, and elicited their stories. As soon as the man found that he was suspected, he left the city, and has not as yet been found.

In this case, the man gratified his lust by rubbing his person against the privates of little girls—in some instances with force, in others not. If he had been arrested at the time the alleged injuries were said to have been committed, and was found not to have gonorrhea, he might have been punished for a short time. We assume that he would be punished in some way, as it is hardly probable that the testimony of so many witnesses against him would be impeached. But the evidences of penetration would have been slight. Of course, if he had been arrested, and had gonorrhea at the time, his chances for escape would have been slim; and yet would it not be possible for five girls to have leucorrhea, even if one only was diseased, if they handled each other, or brought the pus into close contact in any way with their genitals?

CASE VI. *Gonorrhea (?) in Girl Two and One-Half*

Years of Age; Father Suspected.—August 11, 1883, visited an institution and examined the child; found genitals quite red; a little pus and healing excoriations on inside of labiæ; did not ascertain if hymen were present. The child had been under treatment by the physicians of the institution ever since the admission, a week since, when the discharge was copious and the child feeble. On the same day examined the father at the Penitentiary; parts seemed very clean, but on deep pressure over the urethra pus exuded. He claimed, notwithstanding, that he had had the clap, but did not have it now, having been cured several weeks previously. He also stated that a year or two before he had the same disease, and at that time an older daughter had what “the people said” was the same thing, but he knew nothing of it. September 12th, assisted by Dr. Bartlett, the Physician to the Penitentiary, examined the mother of the child; found a profuse white and quite adhesive leucorrhea. The woman admitted that she had been with other men than her husband. All she knew about the child was that it slept with the father when he had “the disease,” and also the older girl when he had it before. The man was sentenced for six months on a charge of vagrancy; never tried for the offense suspected. The woman was sentenced to six months imprisonment for vagrancy; character of both parents was bad, but there was no evidence of any indecent assault on child. Still, if I had been positive that child had gonorrhea, punishment would have been different.

CASE VII. *Rape (?) by Father; Punishment for Indecent Assault.*—January 12, 1884. Girl thirteen years old, small and not very bright. Says that two years ago mother died. Since then she has lived alone with her father, a drinking man and a consumptive, and two brothers, seventeen and nineteen years of age; has slept with her father for over a year, and during that time has several times been compelled to handle his privates till something white and sticky came; several times also has he “got on top of her and worked up and down, but didn’t hurt her.” Her big brother she says “did the same thing” when the

father was away, but she thinks the penis only went between her legs. If she cried out at any time, her father made her stop and keep her legs together. On examination there was no hymen or remains of one, neither any sign of rape having been committed; introduction of little finger caused pain.

Father was sentenced six months for assault, and died in the penitentiary of consumption.

Remarks.—In this case, as in most of the cases recorded in this paper, I have endeavored, as has already been stated, to give the stories of the children in their own words, believing that no matter how unpleasant reading such language may be, still the way in which children tell their stories, the expressions used, are among the best guides we have as to the truth or falsity of their claims. In this case I believe there was no intentional rape, but the man practised onanism by introducing the penis between the legs of the child which was kept together. The fact that the father was a feeble consumptive does not bear against the commission of the act alleged, for consumptives are not infrequently erotic. An attempt at rape even could not be proved against the father, as there was no local evidence, and the feeble-minded child gave her testimony in a garbled manner. The man plead guilty to assault.

CASE VIII. *Alleged Assault by Father.*—April 1, 1884. Girl six years old, mother discovered, so she says, matter on the shirt and drawers of her husband, and also on the child's underclothing, then asked the child for the cause, and the child told her the same story that she told me, viz., that the father on three separate occasions had "put his thing into her," and she hadn't told her mother before "because she was afraid of the father." An examination showed the hymen to be small, crescentic and pliable, but there was no evidence of any injury having been inflicted on the parts. The man was not proceeded against on account of lack of evidence. In this case the accuracy of the child's statement could not be substantiated and no motive could be assigned, except that

the story was suggested by the mother who was living apart from the father. At the time the act was said to have been committed the father was in the same house with mother and daughter.

CASE IX. *Suspected Assault by a Foster-father.*—June 24, 1884, examined girl aged seven years, no evidence of any inflammation or injury of privates, only abrasions of the skin between the thighs as occurs frequently in hot weather. Mrs. S., the foster-mother, states that she slept in one room with the child, and Mr. S. slept alone in another room. On the night of Friday, June 20th, as the weather was hot, Mrs. S. slept on the floor; awoke at 4 A.M., saw Mr. S. in bed with the child. Next day the girl didn't feel well and walked lame, said she was sore. Mrs. S. washed her and found her all swollen about the privates. On Sunday the child could hardly move, and Mrs. S. told her she was a nasty girl and could only get such badness by nasty ways, and if she didn't tell her all about it, she would break every bone in her body. Then, as the woman says, the child cried and said "Mr. S. had peed all over her Friday when he slept with her." Mr. S. is said by his wife to have had some bad disease as he carried medicine for it. To continue the mother's story, "when the father saw the child walk lame, he said 'Mary, some man has been with you,' and when he heard what the girl had told me he ran away." On questioning the child she said that her father put his hand on her, but didn't touch her otherwise.

After repeated questioning and admonitions from Mrs. S. to "tell the truth now" the girl said, "he peed on me," for when she woke up she was all wet on her legs and he was turning away from her in bed. She didn't see him or feel him do anything, and the wet wasn't white or sticky. The child was sent to an institution and so removed from the care of such parents. The questions arise in this case did the child concoct this story in dread of the mother; did the child wet herself by urination; did the father urinate on or near her; did he handle her. It is fair to presume that the child's story is not

true, and that the mother made the child lie. Yet in this case if a doctor had testified as to the slightest abrasion within the privates the father's chances for a term in prison were good.

CASE X. *Rape*.—Child, aged nine years, July 22, 1884, examined her; found vaginal opening patulous; considerable unusual redness of mucous membrane, and adhesive mucus; no spermatazoa; but they may have been washed away when the privates were cleaned. The child's story is that in May last a young man enticed her into a stable, gave her a penny, and "did something to her." In June he did the same in a butcher-shop on the floor. She knows when it occurred because she kept an account in a book, so as to be able to confess to the priest. July 22d, he followed her into a stable "told her to unbutton her drawers and to take hold of his thing and put it into her hole." She did so, lying on some straw. After he was through working up and down he told her to clean herself with a rag he gave her. She did so, using some water obtained from a pipe. The man pleaded guilty; was sentenced to four years and six months; sentence shortened on account of his pleading and his previous good character. The child was not lacerated, probably because she offered but little resistance. Accidentally or not there was enough entrance of the male organ to constitute rape. In this, as in other cases of assault, the motive seems to be largely the desire to have the penis held between the legs of a female until sexual orgasm occurs—*i. e.*, onanism.

CASE XI. *Rape*.—Girl eight years old; offense said to have been committed August 6, 1864, at about 8 P.M. At 10.50 P.M. I examined the child. The father's story was that at about 8.45 P.M. he and his wife returned from a walk; found the child crying bitterly, she said that a man living on the top floor had assaulted her. The mother examined the privates and found them very red and inflamed and *open*. The child stated that after her father and mother went out to walk, the man sent her on an errand to the top floor to the woman he lived

with, giving her some pennies. He then followed her, sat down on the top stairs, pulled her on to his lap, said he would give her twenty-five cents if she wouldn't say anything to anybody, holding up something that looked like money. Then he made her lie down on the stairs with face on one step and knees on another. Then, as the child says, "he got on me and put something hard into me, so it hurt, and I cried and ran down stairs. He said he would hurt me if I told any one."

On examination of privates about two hours after alleged assault, I found the vaginal opening patulous, much unnatural redness of the mucous membrane of vulva, and extending also into vagina. On the inner surface of the left labium majora was an excoriated surface the size of a ten-cent piece. The lesser labia and parts adjacent were covered with adhesive milky-like fluid. Delicate handling of parts caused pain. The upper and inner surface of both thighs were reddened. On the left upper and inner thigh portion of the drawers was a stain. Child walked with difficulty. A microscopic examination of the fluid in vulva and vagina revealed no spermatazoa, but abundant epithelial cells. Unfortunately the stained piece of the drawers cut out for examination was lost. On August 22d, about two weeks after the alleged assault, I examined the child again, in company with a physician employed by the defendant. The hymen was intact, as before; the vaginal opening not quite as patulous. There was no abrasion and only a little unusual redness of the clitoris; child walked with no difficulty.

Remarks.—This child seemed like an intelligent and well-bred girl. Her ready acquiescence in assuming the position the man desired her to can only be explained by a childish innocence and an implicit faith in the man. That the hymen was intact was probably due to the fact that, in the position the child was, the man's instrument impinged most against the upper portion of the vulva, at which point I found the greatest

soreness.¹ At the trial the defendant's lawyer submitted that an assault had undoubtedly been committed on the child by some one, but not by his client, who, in addition to proving an alibi, was too large a man to enter such a small child. But when reminded that the size of a man has nothing to do with the size of his instrument, he desisted from this line of defense.

The man was sentenced to ten years imprisonment.

CASE XII. *Alleged Rape upon a Girl Aged Ten Years.* August 18, 1884.—The girl's story was that, on August 9, 1884, she went to the country as a companion. A week after, while picking beans, a young unmarried man, son of her employers, felt of her legs, putting his hands under her clothes; said she had a fine complexion, etc. During the next week he felt of her limbs several times. She then told the lady of the house, who said she would speak to him. During the second week after her arrival at the house, one day, while in the barn, she awoke from sleep to find the fellow unbuttoning her drawers, though he said he was buttoning them. She told him to go away; he went to the door, but came back and got on her, and put something hard against her person, so that it hurt. He was there a few minutes, and when he got up she was wet with something white, and it smelt like dough. She didn't let the lady know of this occurrence because she was afraid. Three times after this she says connection was effected, once in the orchard and twice in the barn. She states that, in the orchard, he threw her down, saying, "it was a shame, but he had to do it." She told the lady of these last acts, and she said that he was a bad man, and if he didn't stop, the girl would have to go home. A lady across the road from where she was staying told her that the man had done the same to other girls, who had to leave on that account. The girl, furthermore, stated that she was not allowed to write home, or tell her mother. Two days ago—*i. e.*, October 25, 1884—her mother, provoked with her at home, said that if she didn't behave she would have to go to

¹ See case January 29, 1886.

the country, and thereupon the girl told her mother the above story.

In answer to inquiries the child said the man made her "stretch her legs open," and, though he hurt her during the acts, she was not sore afterwards; and, after the first time, did not notice whether she was wet or not.

Examination of privates October 27, 1884. No excoriation; simply blushes of pinkish red color on inside of labia majora; enlarged vessels on inside of right labium; the free border of hymen seems thickened, as if there had been a little inflammation; introduction of end of finger into vagina causes pain. At rest, labiæ pulled aside gently; opening to vagina closed; but seems distensible; a small amount of mucous present.

Remarks.—Condition of parts, as shown nearly two months after rape was said to have been committed, did not point to rape, any more than to the result of a catarrhal inflammation, or to the practising of onanism by the girl herself. This, taken in connection with the statement that she was told to keep her legs open, and that she was not sore after the acts, led me to believe that no attempt at rape had been made; that the girl's story was manufactured; or, if any connection, or onanism, had been attempted by the man, through the girl, it was because the girl had consented. This case was never brought to trial. On investigation it was found that the girl's character was questionable.

CASE XIII. *Alleged Indecent Assault.*—January 27, 1885, a girl, aged twelve years, brought to office by an officer of Society. Her story was, that one year ago, while her mother was sick, her step-father took her (the child) into the kitchen and handled her privates. Two months ago, and two weeks ago, he not only felt of them, but he put his fingers into them; the last time while she was in bed. In answer to inquiry why she did not tell any one of these acts, she said because her father said not to, and because she learned to like the handling.

Owing to this last statement, and because there had been no evidence of stains upon the clothing, or as to

difficulty in walking as the result of alleged violence, I did not examine the girl. Though the accusation against the step-father was dismissed, and case not tried, yet I feel now that I did wrong, in a medico-legal point of view, in not examining the girl. All cases presented should be examined, if not for positive evidence, for negative evidence. In this case it might have been found that the girl herself had practiced onanism.

(TO BE CONTINUED.)

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Derby: Contagious Ophthalmia in Institutions. (*Med. Rec.*, Feb. 13.)

After calling attention to the duties of providing homes or asylums for dependent children, the doctor considers at some length what the duty of cities and states is in maintaining the charge of these children, in order that they may become self-supporting. Annually in some of the asylums of the city and state of New York there are eyes lost and children consigned to our blind asylums to be cared for their life long. In verifying this statement he refers to the written statement of Mr. W. B. Wait, Superintendent of the New York Institution for the Blind, made in January, who believes that cases occur in these asylums, and, also, that children are admitted who are already suffering from eye disease, and he gives as the result of an examination of the matter for the last few years, that thirty-nine of such cases were admitted in his institution who came from well-known asylums and institutions in New York City. He refers to the reports of the inspectors appointed by the local Board of Health, and also to the statements of the gentlemen appointed by the New York Academy of Medicine to accompany these inspectors in their investigations. All of these inspectors are known ophthalmic surgeons. Upwards of fifty asylums in and about New York City were visited. Their report shows the existence of contagious ophthalmia in these institutions to an alarming extent. The doctor

also shows that by investigation it has been found that out of every four children cared for in New York asylums one is suffering from contagious eye disease. In some institutions there are no cases, while in others more than fifty per cent. of the inmates are affected. He shows, as a cause for this, that in many of these institutions children are admitted without having passed any examination as to their physical condition; that those who have the disease are either not quarantined at all, or inadequately. These conditions he considers a most prolific source of trouble.

Moreover, some of the institutions are conducted on a plan by which many of the children are obliged to use the same towels, bath-water, etc. Further, ventilation is poor, and the diet both insufficient in quality and quantity. These evils are to be corrected by having a medical officer in each asylum to examine the condition of children before being admitted; to admit none suffering from contagious disease; to be responsible for the sanitary condition of the institution and its inmates. The doctor ends his paper by stating that an act for the better preservation of the health of children in institutions has been drawn up for legislation. This act provides essentially for the above points, as well as for others of importance.

Delthil: *Practical Exposition of the Treatment of Diphtheria by the Hydro-Carbons*. (*Jour de Méd. de Paris*, July 12.)

1. If contact with a suspected person leads one to fear an outbreak of angina maligna, prophylactic means may be used in the shape of evaporations of essence of turpentine within the sleeping-room of the one who has been exposed, which will be absorbed in respiration.

2. If diphtheritic accidents have appeared, and the case is not one of especial gravity, the turpentine may be evaporated by placing it in a suitable vessel, which is immersed in another vessel containing water which is maintained at a temperature of 60° C. The essence should be crude, and not rectified. The quantity to be evaporated must vary, of course, with the size of the room. In a large room several receptacles should be in use at the same time. These means will usually control diphtheritic angina when it is taken at the beginning.

3. If, after these precautions have been taken, the severity of the symptoms increases and a toxic character becomes apparent, fumigations should be made with a

mixture of gas-tar and essence of turpentine. The following plan of operation is suggested: forty grams of gas-tar and thirty grams of essence of turpentine should be poured into a metallic dish, the latter being placed upon another larger metallic dish to prevent accident by fire, in case the vessel containing the mixture be broken. The mixture is to be lighted and allowed to burn steadily, renewal of the substances being required about once in two hours. A small room should be chosen for this purpose, into which the patient may be carried and allowed to remain for half an hour at a time, after which he may be returned to the regular bed-chamber, in which evaporation of essence of turpentine should be constantly made. Should the odor of the turpentine be too penetrating for the patient, it may be modified by the addition of essence of lemon or of lavender.

For local applications lime-water or lemon-juice may be applied every hour. Applications may also be made with a mixture composed of oil of sweet almonds and essence of turpentine, or of lemon or lavender in the yolk of an egg with mucilage. When the catarrhal cough becomes urgent, indicating that the false membranes have become loose and require to be expectorated, an emetic may be given for this purpose, and ipecac seems to be one which is most effective and least apt to produce ulterior disturbance. The use of these means does not contra-indicate tracheotomy in case such an operation is required. This treatment should be continued, in most cases, for twelve to fifteen days, even with children who are not more than a few months old. Sulphate of quinine should be given in case there is generalized intoxication. The temperature of the room should be kept at a high point.

A. F. C.

Dive: Cure of Infantile Paralysis by Electricity. (*Rev. Mens. des Mal. de l'Enf.* [from *Arch. di Patol. Inf.*, March, 1885], June.)

The author assigns to the action of cold an important part in the etiology of infantile paralysis. One hundred and forty cases are analyzed, and in thirty-seven of them the influence of cold is traceable; in nineteen it occurred in connection with typhoid fever; in nine there were hereditary tendencies to nervous disease; in three the parents were addicted to excessive use of alcohol; and the remaining thirteen were cases in which there was a recurrence of a previously existing infantile paralysis.

The author expressed the opinion that the best means of treatment was the electrical current, galvanism being combined with faradism, but galvanism alone was effective when used in the earliest stages of the disease. The current should be one of feeble chemical action, the descending one being made to pass across the spine and act upon the very seat of the lesion,—that is, upon the anterior horns. The paralyzed and atrophied muscles should be subjected to the action of the faradic current, and at the same *séance* the continuous current may be used, the positive pole being placed upon the vertebral column at the seat of the lesion, and the negative pole upon the course of the nerves which go to the atrophied muscles. During the last three minutes of each *séance* both poles of the constant current should be placed upon the vertebral column. The applications should be made every two days.

A. F. C.

Szuman: A Life-Saving Infusion of Salt Solution. Use of a Fine Trocar for Venous Injection. (*Arch. f. Kinderh.* [from *Berl. Klin. Wochen*, 1883, No. 21], B. vi. H. 5.)

For transfusion purposes the author esteems a solution of salt as more valuable than blood,—1, because it can almost always be readily procured; 2. No particular apparatus is necessary; 3. Its employment in cases of acute anemia can be much more general than that of blood. A fourteen-year-old boy, under the author's observation, received an injection of a solution of salt. He had been caught in some machinery while it was in operation, and had suffered a complicated fracture in the region of the neck of the right humerus, with laceration of the capsule of the joint, fracture of the right tibia at its middle portion, and a subcutaneous fracture in the middle of the thigh. Collapse occurred during the operation of resection of the shoulder-joint, but the patient revived again. Forty-eight hours later, during the change of the dressings, faintness and spasms occurred, apparently caused by cerebral anemia. After using the ordinary analeptics without success, an infusion of salt was made, in which to a thousand grams of distilled water, six grams of salt and one gram of carbonate of potash were added. A trocar with a calibre of one millimetre was introduced into a vein, and through the trocar the solution, contained in a thoroughly disinfected irrigator, was introduced. With gradual increase of pressure about seven hundred and sixty grams were thus infused into

the left median vein, which had the effect of reviving the patient at once. On the evening of the day of operation there was a slight rise of temperature and a chill, otherwise the patient made an uninterrupted recovery. In the opinion of the author the infusion of salt saved the patient's life. A. F. C.

Haab: The Etiology and Prophylaxis of Ophthalmoblenorrhoea in New-Born Infants. (*Arch. f. Kinderh.* [from *Correspondenz-Blatt der Schweizer Aerzte*, Jan. 1 and 15], Bd. vi. H. 5.)

The author warmly commends the prophylactic treatment of Credé in new-born infants (viz., a drop of a five per cent. solution of nitrate of silver instilled into each eye as soon as possible after birth). He thinks that the use of this substance is to be approved not only as a prophylactic, but also as a customary means of treatment for purulent connective tissue inflammations, in this respect being far preferable to resorcin, chlorine water, carbolic acid, salicylic acid, sublimate, benzoate of soda, etc. The favorable results of the use of argentic nitrate as a prophylactic is seen in statistical compilations. Before the employment of Credé's method seven to nine per cent. of children suffered from inflammations of the eyes. Since that method has been in use only one per cent. have thus suffered. According to the author's opinion true *blenorrhoea neonatorum* can only take place by means of gonorrhoeal infection at the time of birth; simple lochial secretion, or simple *fluor albus* never giving rise to this condition. The only positive proof, under whatever circumstances, that blenorrhoea exists, and not catarrh of connective tissue origin, is the demonstration by the microscope of gonococci in the secretions. The author expresses the opinion that since the use of the nitrate of silver will prevent the development of catarrh of the connective tissue, as well as that of blenorrhoea, its use will not meet with objection on the part of parents who might be sensitive to the imputation that there was a possibility of the latter disease. A. F. C.

Wimermark: *Scutellaria Lateriflora* in the Treatment of Enuresis. (*Med. Rec.*, Aug. 22.)

Two years ago when advised by an old practitioner to use fluid extract of skullcap in a case of enuresis in his family, the writer found the result most gratifying. He has since employed it in several cases dependent upon nervous conditions only, and the results obtained have

always been most satisfactory. A lad, twelve years of age, who would urinate from three to six times every night during his sleep, and had done so for several years, received 5j. t. i. d. for two weeks, and was speedily and permanently cured. All the cases occurred in children. *Scutellaria* should be tried, at least, when other remedies have failed.

Dhourdin: Treatment of White Swellings by Scott's Apparatus. (*Rev. Mens. des Mal. de l'Enf.* [abstracted], July.)

The amputation of a limb, or the resection of its articular surfaces, are extreme measures. Other methods are preferable, which, while not so severe, may give as good results. Among these may be mentioned complete immobilization of the joint, emolient and calmative topical applications during the acute period, while at a later period revulsives in the form of blisters, or ignipuncture may be used. With immobilization compression may be used, which will relieve pain, remove congestion from the joint, and facilitate the cicatrization of fistulæ and ulcerations; also the fungosities being deprived of their vitality by compression, atrophy and absorption are favored. Scott's apparatus is based upon the two principles of compression and immobilization, and was devised in 1828. In preparing for its use, the limb is first carefully cleansed and dried. Next, the joint is briskly rubbed for a minute or two with a sponge, upon which some camphorated brandy has been applied. Then cerate, soap, and camphorated mercurial ointment in sufficient quantity is placed upon strips of flannel, which are arranged longitudinally around the joint, passing at least four inches above and below it. Next, strips of diachylon plaster an inch and a half wide are carefully carried around the pieces of flannel, thus securing them in position. Outside of this four bands of thick leather are placed upon the four aspects of the joint, the whole being secured by a light bandage. A modification of this apparatus suggested by Suchard, in 1879, consists in dispensing with the primary rubefaction of the skin, and in the direct application around the joint of a linen compress smeared with camphorated ointment. Outside of this a thin layer of cotton wool is placed, then the diachylon plaster strips, which are covered by another layer of cotton wool, and, finally, a glass bandage for an outer covering. In Scott's apparatus the mercurial ointment acts as a solvent, and counteracts the abundant suppuration. The apparatus may remain in place from twenty to thirty

days, or even longer, if there is no suppuration, or only a moderate degree of the same. In contrary cases it should be changed as often as occasion requires. In all degrees and forms of the disease the apparatus may be used, but it is especially serviceable in cases in which the fungosities are numerous, the osseous extremities enlarged, and in which there are no advanced destructive lesions of the bones. Improvement is especially noticeable in cases in which fistulæ have been established, and in which suppuration is only moderate. A. F. C.

2. MEDICINE.

Chapin: Rheumatism in Early Life. (*Med. Record*, Feb. 27.)

Most authors, while of the opinion that youth and early adult life are the periods most frequently attacked by rheumatism, are not inclined to consider the affection as comparatively very frequent during childhood. Yet any child's clinic, if carefully studied, will produce relatively as many cases of rheumatism as are found in adult classes, but of a different type. Among 76 cases that came under the author's observation, the following are the ages: six months, 1; eleven months, 1; twenty months, 1; three years, 1; four years, 2; five years, 4; six years, 6; seven years, 3; eight years, 11; nine years, 9; ten years, 5; eleven years, 8; twelve years, 7; thirteen years, 9; fourteen years, 4; fifteen years, 2; seventeen years, 2. During infancy the affection is not very common. With reference to heredity, it seems to be an undoubted fact that some state of the system is transmitted from parents to children that will favor the development of rheumatism upon the presence of an exciting cause. Fourteen children had rheumatic fathers, and 13 others had rheumatic mothers; in 6 cases both father and mother had suffered from rheumatism; in 3 children both father and grandfather had suffered; in 1 case the grandfather alone; in two cases brothers, and in another case a sister, gave accounts of rheumatic attacks. Many more cases, not enumerated, gave strongly presumptive evidence of rheumatism in the family, but were not counted because of some uncertainty. In early life rheumatism appears to attack girls more frequently than

boys. Out of 76 cases, 50 were girls and 26 boys. The peculiar and evanescent nature of the lesions, together with their shifting character, make it difficult to get an accurate history of the parts of the body exclusively affected in children. In the majority of the cases some parts of the lower extremities alone were affected, and most of the instances in which the upper part of the body was attacked, were secondary. In 43 cases the lower extremities alone were invaded; in 23 some part of the upper as well as the lower; and in 3 some parts of the upper extremities alone were attacked. With the exception of perhaps ten or fifteen cases who were confined to bed, the children were allowed to go about as usual, although constantly complaining. In most of the cases there was no redness or other particular sign of inflammation at the part affected; there was likewise, as a rule, little or no rise of temperature when the cases were brought to notice. Fascial and muscles about joints were apparently largely affected. The tendency to a repetition of the trouble was shown as follows: In 22 cases there had been two attacks; in 4 cases three attacks; in 1 case, four attacks; in two cases, five, and in another, six distinct attacks. Some of the children seemed so saturated with rheumatism as to be complaining, more or less, all the time. A very general feature in these cases was the presence of marked hydremia. The absorbing interest in connection with the study of rheumatism in early life relates to the heart. In the 76 cases, 26 had organic valvular disease of the heart. Of these 26 cases, 18 had mitral regurgitant murmurs; 2 had double mitral combined with double aortic murmurs; two had mitral regurgitation with double aortic murmurs; 1 had mitral regurgitation and obstruction; 1 had mitral regurgitation with an aortic direct murmur; 1 had a mitral obstructive murmur, and 1 had endocarditis, myocarditis, and pericarditis. The heart is probably more often slightly attacked by endocarditis without leaving a permanent lesion than is supposed in the mild attacks of rheumatism from which children suffer. Pains over the cardiac region are very common in these rheumatic attacks, and doubtless sometimes represent an inflammation in which there has not been sufficient exudation to produce a bruit.

Cases are sometimes seen in which a murmur produced by an acute endocarditis has disappeared some time after the inflammation has abated. In some attacks of rheu-

matism the cardiac inflammation may precede by several days the articular. An endocarditis is likewise not infrequently the only lesion manifested in the rheumatism of children. In some cases the heart will be attacked some time after rheumatism of the joints, and at the time constitute the only manifestation of a rheumatic attack. In most of the histories of valvular disease, the cardiac affection seemed to come on after several attacks of rheumatism. It appeared as if the heart finally succumbed, unable to resist repeated attacks, just as one joint after another will yield to the disease. Congenital heart disease is rare in children, and naturally involves the right side, which is functionally most active during fetal life. Simple hemic murmurs are very rare in children. With reference to a connection between chorea and rheumatism, while it is difficult to determine exactly the relative influences these affections have upon one another, it seems probable that the same morbid condition predisposes to both diseases in children, and that they may be different manifestations of the same affection. In thirty-five histories of rheumatism, there was found a connection with chorea, generally the chorea following some time after a rheumatic attack, but occasionally *vice versa*. In seven cases the rheumatism occurred after one or more attacks of chorea. There were four instances in which cardiac trouble followed chorea without any previous rheumatic history. Parents with rheumatic tendencies may have children who develop chorea instead of rheumatism. There are so many ways in which rheumatism, chorea, and cardiac trouble seemed related, that the opinion of Roger as to their essential identity appears probable. Rheumatism in children seems to have a tendency to attack mucous as well as serous surfaces, especially the throat. In fifteen cases tonsillitis was present before, at the time, or immediately after the attack of rheumatism. While it cannot be proven that there is anything beyond a casual connection between the two affections, the coincidence is such as to warrant further observation. Quite a number of cases of rheumatism were accompanied by attacks of acute urticaria. Stiffness and contracture of the muscles of the neck are sometimes seen. Persistent indigestion and pains shortly after eating are often present, together with more or less headache. To make a diagnosis of an affection that is often obscure in its manifestations, we must depend upon a collection of symptoms, one corroborating the other,

and collectively forming a clinical picture of the disease. In regard to the wandering pains, it is evident that a certain limitation and care must be exercised before considering them rheumatic. Simple bruises and sores must be eliminated, also the muscular weariness developed in weakly children by over exercise. But rheumatic pains usually go from one joint to another, or from one set of muscles to another, and exist independently of any such factors as injury or over-exercise. A pain that attacks a knee, then an ankle, and next the muscles of the thigh or calf, is almost surely rheumatic, without other manifestation of the disease, complete or partial disability may likewise be added to the pain in a part, without any swelling or redness. As an aid to diagnosis, inquiries should be made as to whether rheumatism is present in parents; a careful examination of the heart be made for murmurs and palpitations; the presence of chorea be noted, together with hydremia and indigestion. The slightest suspicion of rheumatism in the child should be subjected to careful inquiry and prompt treatment, and in cases of hereditary tendency the possibility of trouble should be anticipated and averted by careful hygienic training. All forms of indigestion and acid fermentation of food must be prevented. The condition of the skin with reference to warmth and normal activity must receive the needful attention. The medicinal treatment is started with a laxative dose of Rochelle salts, followed by a mixture containing oil of wintergreen and salicylate of sodium. If the heart becomes involved, absolute and continuous rest in a horizontal position must be enjoined, followed by prolonged treatment with iron and cod-liver oil. †

Simon (Paris): *Diabetes Mellitus in Children.* (*Rev. Mens. des Mal. de l'Enf.*, Nov.)

The history of this disease among children dates back only so far as the thesis of Redon in 1877, and that of Leroux in 1880. It is not common in childhood which probably accounts for the apparent neglect which it has received at the hands of systematic writers upon the diseases of children. Four cases are detailed by the author two of which occurred in connection with purpura hemorrhagica, one with an hereditary tendency to the disease, the child's father having been subject to it, and the fourth without any discoverable predisposing cause. In the last mentioned case the result was a fatal one sixteen days after the disease began.

A. F. C.

The Morbidity and Mortality of Measles. (Editorial in *Med. Record*, July 18.)

A number of statistical investigations which have been recently made appear to show that measles is increasing in some parts of the world, while in many places it does not decline in the same ratio with other zymotic diseases. Whether increasing or not, it is evident that measles is a source of mortality which is by no means insignificant. According to the last census the total number of deaths from measles in 1880, in this country, was 8772 in a total mortality of 756,893. In the United States a curious disproportion exists between the South and North as regards the mortality from measles. In nearly every northern and western state the deaths from scarlatina are twice as numerous as those from measles, while in most southern states the reverse is the case. It is known that there are certain countries where measles is always a serious disease. It does not appear to be the climate which produces this mortality, since it is in such regions as Finland and the Baltic coast, Brazil, and the borders of the La Platte, that it is excessive. In New York City the measles is most fatal in the second year of life, during which time one-third of all the deaths occur; next comes the first year of life, then the third and fourth. After the fourth year the mortality from measles is very small. The records of the Health Office in this city, the statistics of Fox, and those of Eloy for Paris, show that a very large measles mortality occurs in the first year of life. In Paris it has even exceeded that for the second year. The practical conclusions are that measles is a disease which kills, if at all, in the first five years of life, before the school age, and that the efforts of preventive medicine should be directed toward keeping it from attacking this period of life.

Chorea (Editorial). (*Med. News*, Nov. 21.)

The etiological and pathological relations of this disease are still obscure, and its association with rheumatism is still a question which is much debated. Joffroy and Saire regard the joint pains of chorea as not necessarily of rheumatic origin. The variations from rheumatism are seen in the absence of fever in chorea, the fugitive character of the pains, the small number of joints affected, and the absence of heat or swelling. The cardiac troubles are believed to be functional. The authors quoted consider that the disease is a cerebro-spinal neurosis, which is associated with the evolution of the nervous system.

They also think that the spinal cord may be likewise associated, as seen in the arthropathies, and the occasional abolition of reflexes. The experiments which have recently been made by Dr. H. C. Wood also tend to prove that the spinal cord is involved in this disease, his conclusion being that choreic movements may depend upon a diseased condition of the motor cells of the cord, which may go on to destructive changes in the ganglion cells. Wood has defined the chorea of childhood as "a diseased condition of the ganglionic structures of cerebro-spinal axis, which abnormal state may exist without alterations of structure sufficient to be determined by the microscope, or may go on until it is accompanied by marked structural lesions. Further, this condition must be looked upon as one of lowered tone, and it must be allowed that it may be produced by various causes." The editor objects to that part of the definition which refers to lowered tone, which could not be associated, he thinks, with over-movement. He also believes, in spite of all contrary opinions, that the condition should still be considered as a distinct nosological entity as long as that right is conceded to such conditions as epilepsy and tetanus.

Owen: Fetal Peritonitis; Constriction of the Ilium; Intestinal Obstruction; Enterotomy; Death. (*Brit. Med. Journ.*, June 13.)

A female child began to vomit on the evening after it was born, and was admitted when two days old, nothing having passed the bowels up to that time; the abdomen was distended and the child was still vomiting. Enterotomy was performed the next evening, the rectum having been previously examined and found apparently normal. Temporary relief was afforded by the operation; fecal masses were passed by the opening, and the vomiting ceased. The child sank, however, and died when nine days old.

The autopsy showed the intestinal obstruction to have been produced by old adhesions, probably the result of intra-uterine peritonitis.

Fränkel: Report of an Epidemic of Infectious Vaginitis in Children. *Rev. Mens. des Mal. de l'Enf.* [from *Virch. Arch.* xcix. p. 251, 1885], Nov. 1885.)

During the year 1881 in the division of the Hamburg general hospital, which was set apart for children, there were numerous cases of vaginitis, and this condition of

affairs continued, with varying severity, until June, 1884, since which time it has gradually disappeared. It was noticed most frequently in children who had had scarlatina, but appeared to have no relation to the scarlatinous exanthem. The ages of the children varied between one and twelve years. The only objective symptom was a more or less abundant vaginal discharge, which was without odor, of neutral reaction, and always purulent. There was no pain in micturition, nor in walking; nor were there ganglionic swellings in the groin. The cause of the condition was chronic in all cases and without exacerbations. The average duration was from five to six weeks. No benefit was obtained from applications of sublimate solution, and the only efficient substance which was used was wood vinegar. A singular fact in connection with this discharge was that under the microscope. A micro-organism was discovered which was identical with Neisser's gonococcus of gonorrhea. The author does not affirm, however, that this vaginitis might be of the same nature as gonorrhea. It was a fact, though, that during the existence of the epidemic no adult girl was sick in the ward with gonorrhea, nor was any boy there with an urethritis of the same character. Fränkel affirms that this disease was contagious as well as gonorrhea, and that the medium of the contagion was the micrococcus, which was identical microscopically with Neisser's gonococcus. The disease was not contracted by actual communication of diseased organs with healthy ones, but by the common use of necessary articles, such as towels, water-closets, etc. It is probable that the virus remains active for some time outside the body, and there must also be an individual predisposition in order to contract it.

A. F. C.

Money: **Acute Miliary Tuberculosis in an Infant of Eight Weeks.** (*Brit. Med. Jour.*, June 20.)

The mother died, when the child was three weeks old, of consumption. The child died two hours after admission, having been ill, it was said, for three weeks with cough and vomiting. There were signs of consolidation over the base of the right lung, and scattered *râles* over both lungs. The spleen could be felt before death three finger's breadth below the ribs.

Tubercles were found at the autopsy studding the lungs, the spleen, the liver, and kidneys. The bronchial and mesenteric glands were enlarged, but not cheesy. Brain not examined. The case was reported because of the

rarity of tuberculosis at that age. The writer attaches considerable importance to enlargement of the spleen as a sign of tuberculosis. In differentiating tuberculosis from simple marasmus from malnutrition, it is stated that in the latter the cry is stronger and more frequent; the children appear to suffer more; are more actively restless and less anemic than in tubercular disease. This distinction refers only to the disease when abdominal or thoracic, not to meningitis.

The origin of the tubercle is an interesting study in the case. Was it congenital, hereditary, or acquired through contagion? We are left to give our own solution.

Dreyfous: Concerning Pseudo-Paralysis of Syphilitic Origin. (*Rev. Mens. des Mal. de l'Enf.* [from *Union Méd.*, Sept. 8.], Oct., 1885.)

Before Parrot's time rare and inexplicable cases of paralysis of the limbs in syphilitics were seen; certain lesions of the bones had also been recognized in young syphilitics by various writers, but Parrot was the first to show that the osseous lesion is the anatomical cause of the false paralysis. This syphilitic pseudo-paralysis presents the appearance of an absolute paralysis of one or several members, but a minute examination will detect very slight movements of the fingers or of the hand which will be of assistance in making a diagnosis. The paralyzed members appear flabby and feeble. As a rule, two of them are affected at the same time, though in some cases all four are involved. With the paraplegia one not infrequently finds a monoplegia of one or both sides associated, but the paralysis always remains limited to the limbs. There are never any contractures; the galvanic and faradic reactions remain intact as well the cutaneous sensibility. Sharp pains may be present, occurring spontaneously, or by pressure upon the bones, or from the movements of the joints. At the level of the epiphyses there may be swelling and even bony crepitation. There is never any fever; nor are there syphilitic eruptions upon the skin. The course of the disease is progressive to a fatal issue. The paralysis becomes general, its duration being from four to twenty-five days in fatal cases, while in those which recover it may continue for two months. In the author's experience death occurred eleven times in eighteen cases. There are three forms of the disease, viz., it may appear in individuals

who are evidently syphilitic as a specific disease or condition; it may appear in consequence of a traumatism, and be taken for a surgical affection; or the syphilis may be overlooked, and it may appear as a paralytic affection. In regard to its pathogeny two causes may be considered: (1) the attendant pain which compels the child to avoid motion of all kinds; (2) the solution of continuity of the osseous levers which serve for insertions to the muscles, whether from fracture or dislocation of the epiphyyses, and which may be considered as a kind of reflex paresis. The diagnosis will rest upon the age subject, the pains, the persistence of certain slight movements, the swelling of an epiphysis, the progressive march of the disease, the general cachectic condition without fever, and the history with regard to the antecedents of the parents. The prognosis will depend much upon the child's hygienic surroundings. For treatment the syrup of Gibert and sublimate baths are recommended, and they should be continued for a long time.

A. F. C.

Smith, W.: Diphtheria and its Treatment. (*Med. Rec.*, March 27.)

Statistics from the records of the Health Department of the City of New York show the great mortality in diphtheria, being from 1879 to 1885, 42 per cent. of all cases reported, and in the first eight months of 1885 the proportion of deaths was 47 per cent. According to a plan of treatment suggested in a paper read by Dr. C. E. Billington, he has had good results, and he gives the history and result in tabulated form of thirty cases treated on this plan. The following are the remedies used, and the manner in which they should be employed. The doctor insists on the necessity of following the plan to the letter:

I. R_y—Sodium Chlorid, 5j;
Sodæ Biforat, 5j, 5ij;
Aquæ Fervens, Oj.

M. Et Sig.—Use with a syringe into nose and throat, every two hours, luke warm.

II. R_y—Acid Carbol., gtt x;
Aquæ Calcis, 5iv.

M. Et Sig.—Use with a hand atomizer in nose and throat every half hour.

III. R—Tr. Ferri Chlor., ʒj;
Glycerine, ʒj;
Aquæ, ʒiiss.

M. Et Sig.—Dose: a teaspoonful every half hour.

IV. R—Potass. Chlorat., ʒss, ʒij;
Glycerine, ʒss;
Aquæ Calcis, ʒiiss.

M. Et Sig.—Dose: teaspoonful every hour alternating with No. III.

Since treating these thirty cases he has used and is well pleased with the following in place of formula No. II.:

R—Listerine, ʒvj;
Glycerine, ʒiij;
Aquæ rosæ qs ft., ʒiv.

He believes the disease to be a local one, with constitutional expression. Having changed in his views as his experience increased, and he considers the danger to the life of the patient due only to the local septic poison, save in the cases in which the larynx or the trachea and bronchi are involved. His thirty cases ranged in age from eight months to fifteen years. The location of the disease was: in eighteen, tonsillar and naso-pharyngeal; in two, tonsillar and pharyngeal; in two, naso-pharyngeal; in one, laryngo-trachea; in one, laryngeal, tracheal, and bronchial; in one, tonsillar, naso-pharyngeal, and laryngo-tracheal; in one, labial, naso-pharyngeal, and laryngeal; in one, labial, tongue, naso-pharyngeal, and laryngeal; in three, tonsillar and pharyngeal. Out of these thirty cases but five proved fatal. The doctor says in regard to this treatment, in order to get good results the spraying and cleansing of the nose and throat must be done in a very thorough manner and often. In none of these cases was alcohol, in any form, or quinine given.

Ingals: Diphtheritic Croup; Life Saved by the Removal of False Membrane from the Right Bronchus. (*Med. News* [Philadelphia], March 28.)

The patient was a child five years and five months of age. The throat had been sore for five days, when the author was called, and examination revealed diphtheritic patches upon the tonsils, with stridor in respiration and dyspnea upon exertion. Sedatives and quinine were

ordered, and also calomel in one-grain doses every hour. The following day two grains of calomel hourly were ordered, and chloral was given as an antispasmodic. On that same day urgent dyspnea supervened, and tracheotomy was performed. Relief was obtained, but dyspnea recurred toward the close of the second day, and was relieved only after a plug of false membrane had been removed from the right bronchus. A few hours later a second plug was removed from the same locality. No further trouble with false membrane was experienced. For nearly a week after the operation eight to ten grains of quinine were given daily in two-grain doses, half a teaspoonful of alcohol in milk every two hours, and a sufficient quantity of stimulating expectorant, and a steam atomizer was located very near the bed, and kept in operation charged with a mixture consisting of

Acidi Carbol., gr. xxx;
Glycerinæ, ʒj;
Sodæ Bi-Carb, ʒj;
Aquæ Calcis, Oj.

Fourteen days after the operation the tube was removed and the wound was allowed to heal. The author thinks it possible that many cases are lost by the failure to remove accumulations in the bronchi after tracheotomy, and that life might be saved, at least in some cases, by timely investigation of the bronchi, as was demonstrated in this case.

Hadra: Two Cases of Congenital Torticollis with Remarks.
(*Med. Rec.*, Jan. 23.)

The doctor reports two cases in female children, the first six, and the second ten weeks of age. The deformity, which occurred on the right side in both cases, was a tumor about the size of a small walnut, situated in the middle of the sternal portion of the sterno-cleido-mastoideus muscle, while the muscle was tense and contracted. The children were born of healthy mothers, and were delivered without active assistance. The deformity was noticed in the first at three weeks, and in the second eight weeks before operation, and in both by accident. Each case was operated on at first by subcutaneous myotomy, and on the following day—in order to make division sure, and for the purpose of removing the tumors—a cutaneous section was made under antiseptic precautions. In both cases the cut surfaces of the divided

muscles presented the appearance of dense cicatricial tissue, the tumors being only enlarged parts of the evenly degenerated muscles, forming nodes. No old blood-clots, or discoloration. The first case recovered per primam; the second, after two weeks. The excised parts were fibrous callus throughout, and no muscle found under the microscope. The author calls attention to the similarity of the two cases, and to the following five points connected with this form of the disease: I. In regard to the etiology nearly all authors accept a congenital, or, better expressed, a fetal origin of the contraction. Such cases as are congenital are due either to fetal inflammation, probably caused by trumatism in utero (twisting, etc.), to a want of muscular tissue development, or to a heterotopy of fibrous tissue. II. Why the right side is predelected, and why, also, the female is the favorite has not been explained. III., IV., and V. from his view, there being no muscular tissue present, and as the contractions are due to fibrous degenerations, no treatment is of benefit other than myotomy. As to the method of operation, subcutaneous, or percutaneous, he gives as advantages in the latter the certainty of division of the muscular band; the ability to remove adventitious matters; avoidance of injury to nerves; the facility of cleansing, and of using perfect antiseptis.

Thorner: A Case of Congenital Croupous Pneumonia. (*Arch. di Patol. Inf.* [from *Deutsche Med. Zeitung*], May.)

The subject of this condition died thirty-three hours after birth. At the autopsy the lower lobe of the left lung was found solidified and completely incapable of expansion. The tissue was of a reddish-brown color, and a turbid puriform fluid could be forced upon the surface. On the lower margin of the lower lobe there were small extravasations of blood. The right lung at its lower lobe showed an infiltration of a dark color near its lower border, the remainder of the lobe presenting an edematous appearance. The upper portion of the right lung contained air, and was hyperemic. The remaining portions of this lung showed splenization with hyperemia. The bronchial tubes contained bloody mucus. The mother of the infant at the time of its birth showed some symptoms of a declining pneumonia, namely, a temperature of 40° C., accelerated pulse, increased frequency of respiration, dulness posteriorly over both lungs, small *râles* upon the right side posteriorly, exag-

gerated pectoral fremitus, and increase of sputum. Microscopical examination of sections from the lungs of the infant showed a reticulum of fibrin with a great number of diplococci and streptococci. The author considers that the case was one of intra-uterine contagion. A. F. C.

Bateman: Scurvy in a Child. (*Birmingham Med. Review*, July.)

A child six years old; had always been delicate; the food had been bread, butter, and tea, morning and evening, and bacon and bread for dinner, except on Sundays, when she had other meat, sometimes salt meat, but never fruit or fresh vegetables. On admission the child was small and poorly nourished; the gums were spongy and bled readily. There were swellings of considerable size about the elbows resembling recent contusions; some similar ones were about the knees. A few scattered petechial spots were over the skin.

There was temporary improvement under the hospital regime; she then refused food altogether and the temperature of the body became subnormal, once as low as 93.4°. After this she had some bloody passages from the bowels; an attack of cancrum oris of the lower lip, which was checked by strong nitric acid. She lost fourteen teeth before the ulceration of the gums was finally cured. The treatment was tonic throughout, alcohol being of more service than all else.

Kingsley: Malaria in Children. (*St. Louis Courier of Medicine*, Aug.)

The conclusions of this paper are the following:

1. There is in malaria in children an absence of the chill and of the sweating stage.
2. There is a slight periodic fever which can be detected only by the use of the thermometer.
3. There are frequent or periodic pains in the head or epigastrium.
4. There is indigestion; also nausea, vomiting, or diarrhea.
5. Tonsillitis, pharyngitis, or bronchitis frequently accompany this condition.
6. Coughing spells occur periodically and most frequently at night.
7. The spleen should always be examined by palpation and percussion, and quinine should be administered in doubtful cases to confirm the diagnosis.

Castillo de Pinero: Diphtheria. (*An. de Obstet. Gineco y Pediatría*, June.)

The author's communication was read before the Spanish Gynecological Society of Madrid. He cited the early experiments of Reig, who cauterized the mucous membrane in the pharynx of animals in order to see if the resulting membranes were similar in composition to those of diphtheria. The prevailing opinion at the present time regarding the cause of this disease is that it is due to parasitic micro-organisms, whether the *zugodesmus fuides* of Klebs and Leterich, or tubes of mycelium described by Buhl and others, which exist before the false membranes are formed. The author believes that the most important factor of all, however, is individual susceptibility, and the determination of this is of more importance than the decision as to the bacteria which are peculiar to the disease. A chemical study of diphtheritic membranes reveals the following facts: They are insoluble in cold water, and are shrivelled by alcohol and ether. Sulphuric acid contracts and partly dissolves them, hydrochloric acid softens, chromic acid hardens them, nitric acid shrivels them, acetic acid converts them into a different mass, lactic acid will dissolve them, tartaric acid will convert them into a gelatinous mass, oxalic acid dissolves them to a slight degree, iodine colors them an obscure yellow and makes them hard and compact, lime water will dissolve them, chlorate of potash will dissolve them slightly, chlorate of soda is about twice as powerful as chlorate of potash, hypobromate of soda is as powerful as lime water, and benzoate of soda also has a powerful action. Bicarbonate of soda, bromide of potash, borax, and acetate of soda have very little effect; perichloride of iron is not inert, as some have said, but its action is not powerful; pepsin and papain both have an energetic dissolving action; cold solutions of papain dissolved the membranes after a few hours, hot ones after a few minutes, according to Bouchut, but this substance has not given the results in practice which were hoped for it. According to Tommau and Hueter the changes which the blood undergoes are to the presence of micro-organisms, probably of vegetable character, which are developed by the disease, and Pagnard has shown that diphtheritic poisoning deprives the blood of the ability to absorb oxygen.

A. F. C.

Brown: Intubation of the Larynx in Fifteen cases of Diphtheritic Croup in the Service of James O'Dwyer, M.D. (*Med. Rec.*, April 10.)

The doctor gives a partial description of the tube as devised by Dr. O'Dwyer of N. Y., and states that in all his cases the tube was introduced to relieve suffering without regard to the hopeless condition of the patient, and no child was allowed to die of laryngeal obstruction. He gives the full history of the fifteen cases, and shows the tube was only employed where the dyspnea was extreme. Four cases recovered. In the cases that died, the diagnosis was verified by autopsy. All the cases were among the class of children called foundlings. One-third of the cases were babies, aged sixteen, twenty-three, eleven, twelve, and five months respectively. Two cases had tuberculosis. One case, a rickety child, died of uremic convulsions after laryngeal symptoms had disappeared. In no case did the introduction of the tube fail to give relief to the severe dyspnea. Many of the cases had pneumonia, either double or single, and the majority had albuminuria. In closing his paper, the doctor calls attention to the following points in regard to this treatment.

The tube requires no attention, after its insertion, to keep it clean, and if a piece of pseudo-membrane should close it (which is not likely to happen), the tube is held so loosely that it would be immediately expelled. The inspired air is warm and moist. There is never any ulceration of the vocal cords; but slight ulceration may be produced by the head and lower end of the tube, when retained for a long time. There is no danger of the tube slipping through into the trachea. In most cases semi-solid food is taken well from the beginning. Occasionally it is necessary to feed very young children through a tube. The mouth-gag is only intended for children who have back teeth.

Wood, H. O.: Chorea. (*Therapeutic Gazette*, May 15.)

This term is often erroneously used, even by systematic writers, to indicate a disease rather than a symptom. It is analogous to the term paralysis or tremor. In the form which is known as post-paralytic or post-hemiplegic chorea, there are two classes of cases—in one, the choreic movements develop with the palsy or even before it, in the other they appear long after the loss of power. The seat of the lesion, according to Charcot, is in the posterior part of the internal capsule, in the immediate vicinity of

the lenticular nucleus and optic thalamus, but this, as well as other forms of chorea, may be entirely hysterical in character and origin. The propositions which the author enunciates, are the following:

1. Choreic movements may be due to organic brain disease.

2. They may exactly simulate the movements of organic brain disease, no appreciable disease of the nerve centres being present.

3. General choreic movements, as well as the bizarre forms of electrical and rhythmical chorea, may occur without any organic disease of the nervous system.

4. Choreic movements may be the result of peripheral irritation, that is, they may be reflex.

5. They may depend for their origin upon a diseased condition of the motor cells of the spinal cord, which diseased condition may not impair the structure sufficiently for the alteration to be recognized by our instruments and hence may be functional. This condition may progress to the production of marked change in the ganglionic cells, or to their total destruction, in which case it must be considered an organic affection.

Finally the author concludes that in the choreic child, the ganglionic cells in the whole cerebro-spinal system, suffer, to a greater or less degree, and that this alteration is the base of the disease. Stated in other terms, the morbid pathology of chorea may be said to be a diseased condition of the ganglionic structures of the cerebro-spinal axis, and this abnormal state may exist without alterations of structure sufficient to be determined by the microscope, or may go on until it is accompanied with marked structural lesions.

Lumbroso: Regarding the Absence of Micro-organisms in the Blood of Patients with Measles, also Regarding the Micrococcus of Broncho-Pneumonia following Infectious Diseases. (*Jahrb. f. Kinderh.* [from *Sperimentale*, 1884, ii., S. 361.] Bd. xxiii., H. 1 and 1.)

The author's experiments upon the foregoing subjects were made in Cornil's laboratory in Paris, and while not yet concluded, reveal much that is interesting. The first part of his work had reference to measles alone and included investigations upon the blood in part during the prodromal stage, in part during the stage of efflorescence, and in part during the stage of desquamation; unfortunately, only negative results were obtained. The skin of these patients was not examined, the products of

desquamation not being included in the plan of investigation. Positive results were obtained from investigations upon the lungs of children who had died from secondary broncho-pneumonia following measles, croup, and diphtheria. Afanassieu, who was also working in Cornil's laboratory, was the first to show in exudate taken from broncho-pneumonia lungs, (1) egg-shaped micrococci (Friedländer's pneumonia cocci) in groups of two, rarely in long chains; (2) large and small round cocci. He was unable to find the capsule surrounding the organisms which was described by Friedländer. On the other hand he obtained, by inoculation of the first variety of micro-organisms, pneumonic affections in the animals experimented upon, but could never obtain these results with the micro-organisms of the second variety. The same results were obtained by the author of this paper in his investigations, and he was, in addition, able to demonstrate the capsule described by Friedländer by the addition of a one and a half per cent. solution of acetate of potash. The same forms of organisms were found in tissues cut from fresh specimens, as in sections made from hardened and stained lung-tissues, the rest of the body being free from these organisms. The cases which were investigated comprised three of measles, one of diphtheria, and one of croup, the micro-organisms mentioned being found in all of them, while nothing which resembled them could be found in a healthy lung which was examined by the same method. Attempts to cultivate these micro-organisms have thus far been unsuccessful. The proof is therefore inconclusive that they are a causative element in secondary broncho-pneumonia. Further attempts may, however, give more positive results.

A. F. C.

Bokai, Jr. (Budapest): **Joint Inflammations which accompany Scarlet-fever.** (*Jahrb. f. Kinderh.*, Bd. xxiii. H. 3.)

After reviewing the literature of this subject the author proceeds to give his idea of this condition, which is based upon his experience. 1. The purulent inflammations of the joints may arise in three ways: (a) the scarlatinal synovitis shows from the beginning the characteristics of a purulent joint inflammation, the existing purulent synovitis being a symptom of septicopyemia; (b) the joint inflammation has a serous exudation at the beginning and subsequently a purulent synovitis is developed; (c) periarticular abscesses break into the cavity of the joint, the joint inflammation thus showing a purulent character.

2. The serous inflammations may also occur in three forms: (a) acute or subacute multiple serous inflammations which greatly resemble rheumatic polyarthritis; (b) cases of monarticular or multiple synovitis which have a chronic course, and now and then develop into *white swelling*; (c) serous inflammations in the place of which, sooner or later, purulent processes develop. In those cases which resemble polyarthritic rheumatism, the joints usually become affected during the second week, or at the beginning of the third, in other words they usually occur at the beginning of desquamation. Should they occur before the exanthema has made its appearance the author believes they should then be considered true cases of rheumatic polyarthritis. Two or three joints are usually affected at once, the carpal joints being most frequently selected. Pain is usually present, swelling may be entirely absent. The degree of interruption of joint function will be regulated by the intensity of the inflammation. The rapid change of inflammation from joint to joint, which is pathognomonic of rheumatic polyarthritis, does not occur in this affection. The inflammation remains fixed, usually for a few days, and then subsides. The prognosis is a good one unless the other serous membranes become inflamed.

The second form of serous inflammation which may be acute or chronic, and may develop into *white swelling*, has this latter fact for its chief characteristic. It is usually monarticular and may involve the hip, knee, elbow, or shoulder joints. Its course is a protracted one, the pain is only moderate, though the transudation is abundant, and may eventually become purulent. The cause of its protracted course and occasional change of type may be attributable to the constitutional dyscrasia of the patient, especially if scrofula be present. The third form is that in which, sooner or later, suppurative processes occur. The symptoms in such cases are high, continued, or intermittent fever, pains and swelling, reddish discoloration of the skin, and unexpected deterioration of the general condition. The suppuration is almost always limited to one joint. The course of cases of this character is either acute and fatal, or chronic with the formation of a fistula, and finally healing by ankylosis, or death from exhaustion.

Under the head of purulent synovitis the first form is that in which the suppurative inflammation of the joint is a symptom of septico-pyemia. It has been compared

with the multiple purulent joint inflammations which accompany puerperal fever, and is very apt to be associated with a gangrenous process in the connective tissue of the neck. The pain, erythema, and swelling are more decided than in those cases in which the inflammation is serous at the beginning. Henoch thinks that in cases of this character the phlegmonous inflammation in the neck has a causative relation, an embolus being carried from the neck to the joint. Another division of this variety is that in which the purulent joint inflammation is caused by periarticular abscesses which open into the joint. Cases of this kind are extremely rare, and the only ones which are reported by the author had a fatal issue.

A. F. C.

Andrews: Contagious Conjunctivitis; Its Causes, Prevention, and Treatment. (*N. Y. Med. Journ.*, Oct. 24th and 31st.)

Ophthalmia Neonati.—The chief cause of this trouble is infection derived from the genitals of the mother, either at the time of birth of the child or a short time afterward, the poison in the latter instance being transferred to the child—healthy at birth—through the medium of the bath-water, but much more probably through sponges, towels, etc. Credé maintains that a pure catarrhal secretion of the genitals does not produce blennorrhea, but Haussmann says that the vaginal secretions may be infectious. *Granular Conjunctivitis*.—Cocci are found in the secretion of granular conjunctivitis, and the disease is unquestionably contagious, and the secretion is the carrier of this contagion; but there is this peculiarity about the disease, that it requires that certain constitutional conditions shall obtain in order that the disease may be produced in another to whose eye the secretion has been transferred. It is a clinical fact that struma and trachoma generally go hand in hand, and overcrowding, filth, and poor food are the essential factors in the production of this terrible disease. *Diphtheritic Conjunctivitis*.—This affection is rare in this country. Its contagiousness is undisputed, and the germ theory affords the best explanation of its phenomena; and yet, in spite of many elaborate researches, the precise nature of the diphtheritic virus is yet a matter of doubt. Prophylaxis of ophthalmia neonati, starting from the proposition that the infection of this disease is derived, in the first instance, from a pathological vaginal secretion from the mother, thorough cleansing of the diseased vagina should

be practiced before the birth of the child, and when the child of such an infected mother is born, its eyes should be washed with a saturated solution of boric acid, and a two per cent. solution of nitrate of silver be dropped into the conjunctival sac; and the child and mother should be kept from other children.

Treatment.—The attendant's hands and nails must be thoroughly cleansed and the eyes protected with protective spectacles. If one eye only is affected, its fellow should be sealed with cotton-wool, covered with adhesive plaster, and over this a solution of rubber should be painted, so as to exclude any discharge which may run over the bridge of the nose from the affected eye, and in the case of infants the hands should be secured in order to keep them from the eyes. To lessen inflammation, ice cloths are to be constantly applied. Infective material must be washed away as thoroughly and early as possible and then the conjunctival surface be rendered as nearly aseptic as possible. The conjunctival surfaces of the upper and lower lid may be painted with a two per cent. solution of silver nitrate, or even twelve per cent. if the conjunctiva is much swelled, followed by a solution of sodium chloride.

Weiss: Concerning the Toxic Dermatoses. (*Arch. f. Kinderh.* [from *Prager med. Woch.*, Jahr ix., No. 4], Bd. vi., H. 6.)

The author understands by the term *toxic dermatoses* inflammatory disturbances of nutrition of the skin, which have been caused by the reception into the blood of poisonous chemical agents. This expression is thought to be more appropriate than the one hitherto used, namely, *eruption from medicinal substances* (copaiba, bromide of potash, etc.). The phenomena, which occur simultaneously with the eruption are of great practical importance, since by these means alone, in some cases, a differential diagnosis can be made from the acute exanthemata. In a case which is reported by the author a young man took twenty grams of cubebs, and high fever (40.8° C.) resulted, with vomiting, delirium, etc. The accompanying eruption so closely resembled that of variola that the physician deemed it necessary to take all suitable precautions to prevent infection. The eruption disappeared in three days, but a satisfactory diagnosis was obtained only after a similar quantity of cubebs had been given, and a similar series of phenomena observed.

Auspitz has expressed the opinion that disturbances of this character are of vaso-motor origin, but the author believes that disturbances of nutrition in the skin of inflammatory character, in toxic and infectious dermatoses, are, like the simple inflammatory dermatoses, the effect of an inflammatory lesion or alteration of the vessels.

A. F. C.

Steffen: **Aphasia.** (*Jahrb. f. Kinderh.*, Bd. xxiii., H. 1 and 2.)

This condition is not unknown, nor of decided rarity among children. Twenty-two cases have been collected and analyzed by the author, eleven being in girls, nine in boys—sex not stated in two. The age varied between three and twelve years. The condition was associated with other morbid conditions, typhus being present in four cases, chorea in two, meningitis in nine, and trauma in two. In two cases disturbance of the digestive tract was the causative influence, and in one each scarlatina, measles, diphtheria, whooping cough, and violent fear. In fifteen cases speech returned unimpaired, the duration of the condition varying between a few hours and several weeks or months. In two cases the condition was permanent, depending, in the one, upon meningitis; in the other upon encephalitis. Death occurred in five cases, severe brain lesions being present in all of them. In eleven cases there was hemiplegia, nine being right-sided and two left-sided. Of the five fatal cases, the left hemisphere was affected in four, the right in one. Congenital aphasia is rare, as compared with the acquired form. Five cases are narrated, one from the author's own experience. As a rule he thinks that aphasia is associated with disease of the left convolution of *Boca*, and aphasia alone is present when this convolution, or the tissue in its immediate vicinity is affected. As soon as the process reaches the neighboring cortical centers, disturbances in voluntary motion begin, and these may develop into complete paralysis. Should the process extend through the white fibres to the corpus striatum, paraplegia would follow. The course of the disease depends largely upon the conditions which affect the speech center. It may disappear suddenly with the sudden disappearance of the cause, or gradually as the unaffected center becomes accustomed to increased functional activity. Young children stand a much better chance of overcoming this condition, with the development of the brain, than older children or adults.

A. F. C.

3. SURGERY.

Godlee: Two Cases of Strangulated Hernia in Infancy. (*Med. Times*, Oct. 3.)

CASE I. was a boy six weeks old and symptoms of strangulation had existed for twenty-four hours. Taxis being useless, the tumor was cut down upon and the constriction, which was not very tight, relieved; but not until the neck of the sack had been notched. The cord and vessels were carefully separated from the surrounding structures, and then the neck of the sac was surrounded by a catgut ligature passed by an aneurism needle. The pillars of the ring were stitched by catgut sutures.

With the exception of some orchitis the case went on to an uninterrupted recovery.

CASE II. was a boy five weeks old; symptoms of two days standing. A similar operation was done with complete success. In both cases the gut was very much congested.

The author remarks that in these and similar cases he has often found the constriction not very tight, often a large probe could be passed along the neck of the sac; yet reduction was, notwithstanding, attended with considerable difficulty, and required notching the sac. All his cases had been followed by more or less orchitis.

He urges early operation in these cases, since, with thoroughly antiseptic precautions in young children, it is nearly always successful.

Phillips: Congenital Sacral Tumor made up of a Spina-bifida and a Kidney which could be Reduced. (*Med. Times*, Oct. 10.)

This unique case came under observation when three years of age, the tumor having existed since birth. It was situated in the lumbo-sacral region a little to the left of the median line. It was distinctly lobulated, the lobules being of a large size and four or five in number and deeply attached on their under surface. The outermost one on firm pressure was felt to slip from under the fingers into the abdomen, leaving an empty collapsed bag of skin. From the general contour and feel it was believed to be the left kidney. The spine was doubtfully made out to be cleft beneath the tumor proper. The child was in poor condition and no other prospect of relief appearing, an exploratory incision was made.

The lobules to the right and outlying the cord were found to be cysts with firm fibrous walls, connected to the meninges through a wide cleft, and one which was opened was found to communicate with the subarachnoid space very freely. Further operative interference not being deemed advisable the wound was closed. Death took place ten days later by exhaustion and convulsions.

The autopsy confirmed in the main the diagnosis made during life. There was a wide cleft in the lower lumbar and upper sacral vertebræ. At the bottom of this lay the conda equina enclosed in its membranes, attached to the posterior surface of which were a number of tough fibrous cysts containing a straw-colored fluid. Only one actually communicated with the subarachnoid space. These cysts with the fat made the bulk of the tumor. To the left of the spinal cleft was the left kidney and beneath it cleft in the muscles through which it could be returned to the abdomen to its normal place. The kidney appeared perfectly healthy.

Vance: Cases in Orthopedic Surgery. (*N. Y. Med. Jour.*, Nov. 7.)

The ailment known as infantile paralysis is, and always has been, the dread of the orthopedist. It is productive of almost half the cripples we meet, and is dreadful because of the meagre results attained by treatment, most of the authorities now holding that all relief derived comes spontaneously, and the effects of treatment other than that to prevent deformity, and to promote locomotion, are *nil*. The use of mechanical appliances for the purpose of gaining the above-mentioned results is very unsatisfactory. In a number of cases the doctor has obtained good results by excising the useless joints and producing bony ankylosis.

CASE I. Boy, aged nine, subject of extreme valgus from infantile paralysis; unsatisfactory use of apparatus for several years; artificial ankylosis produced, with good locomotion resulting.

CASE II. Boy, aged seven, subject of infantile paralysis of six years standing; partial spontaneous recovery of one limb, the other almost completely powerless and greatly deformed; no locomotion without crutches; excision of right knee followed by bony ankylosis, with relief of deformity and great improvement in walking.

CASE III. Case of talipes equino-varus from infantile paralysis in a young woman, aged twenty-five; com-

plete correction by tenotomy and retentive apparatus; almost complete relapse after four years; excision of ankle-joint, with correction of deformity and good locomotion anticipated.

CASE IV. Subcutaneous osteotomy of the femur below the trochanter for angular deformity of the thigh from hip disease; the great crippling relieved and good locomotion obtained.

CASE V. Deformity of left lower extremity in a young man of seventeen, the result of knee-joint disease of many years standing, relieved by subcutaneous osteotomy of lower end of femur.

Wyman: Operation for Congenital Extroversion of the Bladder of an Infant Five Days Old. (*Med. Record*, Dec. 12.)

The baby appeared in every respect healthy, excepting a malformation of the genito-urinary tract. From the umbilicus down to the triangular ligament there was a want of development which caused an extroversion of the posterior wall of the bladder, showing the orifices of the ureters; also an absence of the dorsal portion of the penis from the crus to the glands. Through this large opening the posterior wall and base of the bladder with the prostate gland protruded, making a most unsightly deformity. The urine constantly dribbled away from the ureters, soiling the limbs and body of the child. The child was given chloroform, and the mucous membrane removed in a strip one-half inch wide, running around the margin of the vesical wall, where it blended with the integument of the abdomen, excepting a small area which corresponded to the inferior wall of the urethra. Then an incision was made in each side through the integument and superficial fascia arising from Poupart's ligament, just forward of the anterior superior spine of the ilium, upward a distance of two inches, for the purpose of securing sufficient relaxation of tissue to let the opposite pared surfaces come together and unite. The pared surfaces were then transfixed with three hare-lip pins, and a figure-of-eight ligature was passed about them, bringing the margins of the abdominal cleft in contact; additional sutures were passed between the pins and on either side of them, securing perfect apposition of opposing surfaces. A perfect union of the surfaces opposed by sutures took place. The early age at which the operation was performed, and the facility with which the child rallied from shock and hemorrhage, are especially worthy of attention in this case.

Barrand: Operation for Congenital Hare-lip. (*Rev. Mens. des Mal. de l'Enf.*, Nov.)

Of first importance are a firm table or couch and an assistant to hold the patient's head immovable. An anæsthetic may or may not be used. If the case is a simple one the time required for the operation will be five minutes. If it is complicated of course a much longer period of time will be necessary. The question as to the use of anæsthetics is an important one, and there are many obvious advantages in operating without them. These must be weighed with the disadvantages in deciding upon this point. As performed by M. Saint-Germain the different steps of the operation are, the separation of the mucous membrane which unites the lip at the alveolar border; the resection of the intermaxillary bone when that is necessary; or pushing it into position with the finger if that is possible; the paring of the edges of the parts which are to be united and the passing of the sutures. Saint-Germain uses silver sutures when the tissues are sufficiently abundant so that not much traction will be exercised, in other cases he makes use of hare-lip pins. The only dressing to the wound which is recommended is a layer of vaseline. In the after-treatment the hands of the child must be secured in such a way as to prevent contact with the wound and at the same time to occasion as little irritation as possible. Nourishment should be taken from the breast if possible, otherwise by means of the bottle or spoon. In extreme cases the method of gavage must be resorted to. The sutures or pins may be removed in from four to six days, according as the wound seems firmly united. If silver sutures have been used it may be necessary to retain them as many as ten days in some cases.

A. F. C.

Giesler: Subcutaneous Cold Abscesses in Scrofulous Children in their Relation to Tuberculosis. (*Rev. Mens. des Mal. de l'Enf.* [from *Jahrb. f. Kinderh.*, xxiii., 1 and 2], Nov.)

Since Koch made his discoveries in respect to tuberculosis it is generally admitted that all the inflammations in which the specific bacillus is present, or in which the inflammatory matter inoculated in animals gives rise to true bacillar tuberculosis, should be regarded as tuberculosis. The result of this has been a tendency to classify with tuberculosis a large number of processes which have phenomena which would naturally place them under the

head of scrofulous conditions. Seven cases of subcutaneous cold abscess in scrofulous children form the basis of this author's report. Bacilli were not found in any of them. Subcutaneous inoculation and intra-peritoneal injections, with material obtained from them, also produced negative results. The conclusion was reached, therefore, that such conditions, which are common with scrofulous children, are not of the same nature as bacillar tuberculosis, though one may find giant cells and lymphoid formations. The phenomena and the processes should be considered those of scrofula, not tuberculosis.

A. F. C.

Lovett: *An Analysis of Seventy-seven Cases of Tracheotomy.* (*Med. Rec.*, April 3d.)

Of 77 cases of tracheotomy for pseudo-membranous laryngitis, done at the Boston City Hospital, 20 recovered, 57 died; 25 with septic symptoms, 26 with symptoms of extension, 4 died of syncope, 1 of pneumonia, and 1 of peritonitis. The septic cases died earlier than those of extension. Average length of life after operation in the first set of cases (septic), was 48 hours, of the second, 81 hours. The ages of the children ranged from nine months to two years. The youngest recoveries were in two children fifteen months old. In 44 cases, operation was done on the first day of the croup, in 16 on second, and in none later than the third day. Croup supervened on the diphtheria from the second to the tenth day, averaging the sixth. In the favorable cases the croup came on later than in the fatal cases. All cases were treated as diphtheria. In 48 cases the membrane was visible. In nine cases a diagnosis of diphtheria could not be made. Four of these recovered. The operation done was ordinarily the high one, and anesthesia was not used in more than one-half the cases. Ether invariably produced spasm; chloroform excited no spasm. After the use of either, especially ether, there was marked collapse. As a means of euthanasia, where septicemia prevailed, the death was easy, but in the extension cases death was preceded by great dyspnea. Albumen was present in the urine of nearly all the bad cases examined. There was more or less enlargement of the superficial cervical glands in all but five cases. This varied from a few lumps to a neck as large as the head. The large necks accompanied only the very septic cases. A progressive enlargement of the neck was one of the worst possible prognostic signs. The character of th.

discharge from the tube was a most interesting indication of a case's progress. For first twenty-four hours, bloody and loose, after this, whitish or yellowish, thick or loose. As long as it was free and not sticky it was favorable. Marked diminution in the amount of discharge was an ominous sign. In fatal cases a gummy discharge ordinarily appeared twenty-four to forty-eight hours before death. The suppression of discharge accompanied both septicemic and extension cases. The temperature reached 107° F. in three fatal cases. No case recovered when the temperature reached 105° F. A sudden rise of temperature on third, fourth, or fifth day was serious. The treatment proved interesting. A part of it was routine, while it was in part adapted to each case. Each child was kept in a room where the steam-pipe had been tapped, and a cloud of steam was played directly upon the child. Tube kept clear, and inner tube cleaned every hour.

Diet was milk "*ad libitum*," and some stimulant was given, ordinarily brandy, alternating with the milk every other hour. Some cases were given broth and egg-nog. Steam continued until wound was nearly healed. Tube removed on fifth to seventh day. One to four ounces of brandy were taken each day. The percentage of recovery in cases treated with corrosive sublimate, $\frac{1}{10}$ gr. every one or two hours, or calomel $\frac{1}{2}$ gr. every two or three hours, was 35 per cent; while that of non-mercurial treatment was 12 per cent. The children took on an average 30 to 40 ounces of milk a day; and all the recoveries but three were in children who took 30 to 40 ounces of milk per day.

Plenio: Tracheotomy in Diphtheria. (*Jahrb. f. Kinderh.* [from *Arch. f. Klin. Chir.*, Bd. xxx., H. 4], Bd. xxii., H. 4.)

At the surgical clinic at Königsberg only those diphtheria cases were received which required tracheotomy at once, or within a short time, consequently the cases were of the severest character and were drawn from the poorest classes of the people. The patients were received into a spacious, well-ventilated, isolated pavilion, the temperature of which was kept at 14° R. (69° F.), and the air dry and pure. Between April, 1882, and April, 1883, one hundred and eleven cases were received, of which forty-seven died. The ages varied between one and twelve years, and the greatest mortality was between the third and fifth years. In 1878-79, sixteen were tracheotomized, with nine deaths; in 1879-80, twenty-

one, with eight deaths; in 1880-81, twenty-eight, with sixteen deaths; in 1881-82, fifty-eight, with thirty deaths. As a rule the operation was performed as soon as breathing with the auxiliary respiratory muscles began and marked inspiratory efforts were observed in the jugular veins, the epigastrium, and the lower region of the ribs. In about two-thirds of the cases the low operation was performed,—in the remainder the high one,—the cutting of the cartilage rings being avoided in the latter. In almost all cases the patients were chloroformed. Between the wound and the canula plate a piece of linen dipped in carbolized oil was placed, and over the mouth of the canula four ply of gauze wrung out of a one-half of one per cent. solution of salicylic acid. Hungarian wine was freely given during the after treatment, and apomorphin to assist in removing the false membrane, the formula being:

R_x—Apomorphin, 0.15;
Acidi Mur., 1.00;
Aquæ, 500.00.

' Sig.—A teaspoonful to a four-year old child every two hours, unless contra-indicated by vomiting with threatened collapse.

Inhalations of a one-third per cent. solution of salicylic acid were also used as long as the reappeared to be any danger of an extension of the disease process. If the process appeared to be extending a solution of alum, also one-third per cent., was substituted for the salicylic acid and inhalation continued. No success was obtained from the aspiration of the false membrane after the operation and in the course of the after treatment. Diphtheria of the tracheal wound was treated with iodoform vaseline, iodoform powder, or iodoform collodion. On account of possible disturbances of deglutition by the use of fluid food, the author approves the plan of using a mixed diet, consisting of meat finely divided, eggs, white bread soaked in milk, etc. Diphtheritic heart paralysis was observed in three cases, and was announced by the crossing of the pulse and temperature curves, the latter quickly sinking below the normal and the former rapidly rising.

A. F. C.

Hagner: Case of Sympathetic Bubo in an Infant. (*Amer. Journ. of Obstetrics*, Oct.)

In the case reported the simple operation of breaking up adhesions between the glans, penis and foreskin

was followed by troublesome symptoms, which afterwards called for the operation of circumcision. The case will also put us on our guard against creating irritation about the penis without performing the entire operation, because, when circumcision is performed, we lessen the risk incident to the formation and retention of discharges beneath the foreskin. In a child fourteen months old with phimosis, the foreskin, which was almost entirely adherent to the glans, was separated and the frenum cut. The child did well for forty-eight hours, when fever set in, followed by an erysipelatous inflammation of the penis and scrotum, with such great edema of the prepuce that it had to be punctured in several places, as it looked as if it were going to slough. Two enlargements next appeared in the groins, and it was soon evident that pus had formed. Circumcision was then performed and the abscesses opened, each of which discharged considerable pus. After this second operation the inflammation rapidly subsided and the child made a good recovery. It is important to realize how careful we must be in inducing irritation about the genital organs, and the doctor will never again recommend any partial operation for phimosis.

Gross (Nancy): **Posterior Tarsotomy in Old Cases of Club-Foot.** (*Rev. Mens. des mal. de l'Enf.*, May.)

The author affirms that since the adoption of the antiseptic method there is no longer any danger in this operation. The first case which he narrated was that of a girl eleven years of age, who had had since infancy a *varus equinus* of the left foot, and who was completely cured two months after her operation. Cuneiform tarsotomy was performed, the astragalus being removed, the *tendo Achillis* divided, and an elastic apparatus of redress applied. The case of a boy ten years of age, with congenital *varus equinus* was also reported. In this case, though the functional result was satisfactory, there still remained a decided internal curvature to the foot. As a further procedure in such cases, the author recommends, and has practiced in several cases which he reports, the ablation of the astragalus and the resection of the anterior extremity of the calcaneum. With antiseptic precautions tarsectomy, as well as tarsotomy, is a safe operation. The functional result is usually very satisfactory both as regards walking and standing, but this result will depend largely upon the condition of the extensor muscles. A recurrence of the deformity after this operation is quite improbable.

A. F. C.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

JUNE, 1886.

[No. 6.

Original Communications.

REPORTS, WITH COMMENTS, OF TWENTY-ONE
CASES OF INDECENT ASSAULT AND RAPE
UPON CHILDREN.

BY JEROME WALKER, M.D., BROOKLYN, N. Y.

[CONCLUDED FROM PAGE 286, MAY NUMBER.]

CASE XIV. *Attempted Rape*.—Girl aged twelve years. Her story is that three weeks ago (*i. e.*, about the middle of January, 1885), when her mother and sister were out, her step-father sent her to the cellar on an errand, followed her, put her on the floor, and was just getting on her when one of the neighbors appeared. One week ago he put her in bed, got on her, and put his penis between her legs and not into her. After she got up she was dry and did not feel sore, except a little the next day. The girl maintains that she has never played indecently with any boys or girls, or has ever seen any indecent action by others.

Examination.—February 7, 1885. Hymen intact, circular in form; opening to vagina enlarged; general

redness of parts; no discharge of any kind; an apparent slight bruising of the inner side of the right labium. Inference, after examination, is that there has been some local injury to parts by handling or otherwise, or that there has been a catarrhal inflammation. The girl's manner and story leads one to believe that she has been assaulted within a week or two. The man plead guilty and was sentenced to one year imprisonment.

He was allowed to plead guilty to indecent assault, merely because there was not sufficient corroborative evidence of rape having been committed, though the belief in the man's guilt was strong.

CASE XV. *Attempt at Rape (?)*.—On May 21, 1885, I examined A. L., aged six years. There was no evidence of an assault; hymen, as I remember it, was intact. There was no unusual redness, no abrasions, no bruises or enlarged vessels. Her story was that a young man, an Italian, living near where she lived sent her to the store for some eggs, giving her a penny; that when she brought them to his room, he locked the door, unbuttoned her drawers, and put "his dickey into hers;" but he didn't hurt her any. The mother of the child stated that the child was out of sight for ten or fifteen minutes only, and that when she rescued the child from the Italian's room, the child was not wet about the privates, nor was the clothing soiled.

Remarks.—This case went to the Police Court, but there being *no corroborative evidence* to sustain the charge of even indecent assault, man was discharged. In this case the child's story arrested the man, and if there had happened to be the slightest sign of any injury to the privates, even as the result of a catarrhal inflammation, the man would probably have been sentenced. The man might have, in the few minutes the child was with him, put the end of his instrument into her, or against her, without causing any redness even.

CASE XVI. *Rape upon Three Little Girls.*—June 26, 1885. Examined and questioned the children, aged nine years, nine years, and eight years, respectively. Their state-

ments, obtained separately, without one knowing what the other had said, were substantially the same, viz.: On Saturday, June 13th, while roaming near a rope-walk they met an old man, who walked with them into a deep hollow space, and then told them that he wanted them to do something to him, and if they didn't they would be sorry. He then unbuttoned L's drawers (girl aged nine), laid down on his back, put the child on him, and his thing into hers—she thinks about one and a half inches; kept her in that position for a few minutes; gave her five cents, and then he repeated the act with her two cousins. L. did not suffer from assault till three days after, when there was pain in walking and a discharge from vulva, for which she was first treated by a doctor on the Friday following the assault. The second child assaulted (aged nine) said it did not hurt at the time or since, though she was sure he had entered her about half an inch. The third child (aged eight) said it had not hurt her, and was uncertain whether the man's penis had entered her or gone only between her legs.

Examination of first child.—Swelling of clitoris and labiae, great sensitiveness of parts, an abrasion, and enlarged bloodvessels on right greater lip, considerable pus; hymen apparently not torn. The assault was longer with this child than with the others.

Examination of second child.—No swelling or pus, no abrasions, slight sensitiveness, slightly enlarged vessels on right greater lip.

Examination of third child revealed about same conditions as in the case of second child.

On July 2d, I examined the man, aged sixty-one years, at the jail. There were no evidences of gonorrhea to be seen on uncovering penis, or after pressure on urethra; but the penis was small, not much larger than an average boy of seventeen. Though the man said he had not washed his privates, they were so clean that I was led to believe that he had, and that he had probably washed out the urethra by an injection, for the first girl examined had, in the opinion of her attending physician and myself,

an attack of gonorrhea, the inflammation was so acute and extended into the vagina so rapidly. The other two children probably did not have the disease because the man was with them but a short time, and it was a question whether he really entered them.

The man finally plead guilty, and, on account of his age, was sentenced to only ten years imprisonment.

CASE XVII. *Attempted Rape*.—August 11, 1885, examined S. H., aged seven years. Her mother states that on Sunday, August 9th, S. went to her uncle's house about 9 A.M. At 11 A.M. the mother was called over to the house by a neighbor, and there saw the child sitting astride the man's knees with her drawers unbuttoned and down, and the man's penis in her privates. The man's wife was sick in another room. The child says that after going for some beer for him he gave her some and a penny, as he had done on two other occasions when he attempted connection. On the last occasion the child's drawers were wetted, but the child says she was not hurt any.

Examination on second day after assault.—There was no redness, or any sign of injury. The vagina admitted the end of little finger readily.

The uncle admitted the assault as the child explained it, and was sentenced to five years imprisonment.

Remarks.—In this case the child's idea of right conduct seemed hazy. She was easily inveigled by a penny on three occasions. The man probably caused no injury because there was no resistance, because he was drunk, and because the position of the child forbade anything more than a rubbing of his parts against hers, or it may be that, the hymen being absent, the parts were more open than would otherwise be the case.

CASE XVIII. *Alleged Attempted Rape*.—August 25, 1885, I examined S. O., aged thirteen years; apparently a truthful child, and of retiring disposition. The opening to the vagina was patulous, and the vagina distensible. The index finger could be admitted readily to the extent of two inches without pain resulting. On the inner side

of right greater lip was a small abrasion, with enlarged bloodvessels leading to it; parts leading to clitoris look thickened, as if attempts at rape or handling had been effected several times, which the girl denies. Her statement is as follows: That yesterday when her father had gone to dinner, W., an employee of his, asked her into the shop; then unbuttoned her drawers, pulled them down about her ankles, put her on a chest, got on her, put his thing into her or between her legs, she was not certain which. She told him to stop, but he wouldn't; she did not cry out. After he was through she was dry; there was no soreness or pain, or any difficulty in walking. When the father returned he found her crying, ascertained the cause, and had the man arrested.

On September 5, 1885, I examined another girl, aged nine years; found the parts normal, with the exception that they were quite red; hymen intact; an attempt to introduce little finger caused pain. Her story was that one month ago W. called her into the shop, wanted a kiss, asked her to "fuck with him," but she wouldn't. He then stood her upon a chair, put his thing between her legs, and lifted her up and down, kissing her meanwhile.

On September 5th, I examined S. O. a second time,—abrasion gone; could readily introduce the finger and stretch the opening without causing pain; girl now insists that the man entered her.

On September 9th, when the case was before a Justice, the doctor, who attended case soon after act was said to have been committed, testified that he had found no abrasion, or any semen, but noticed the absence of hymen and the patulous opening.

Remarks.—The absence of hymen was probably congenital, as there were no apparent remnants. Its absence may have accounted in part for the distensibility of vaginal opening. The abrasion looks as if there had been an entrance by some instrument, or very rough handling; it may have been by the father who examined the child, or even by the instruments of the doctor.

The thickened condition of parts may have been congenital, due to catarrhal inflammation, or to repeated injury. The manner of the girl, together with the local condition, and the fact that a second girl testified against him, point to the truth of the first girl's story; yet, in spite of all this, the girl may not tell the truth. She was thirteen years old, and seems not to have offered much resistance, even did not cry out when she said she was assaulted, and so the man could not be tried for rape. Case still on.

CASE XIX. *Incest and Gonorrhœa*.—Girl aged nine years. January 28, 1886, at a police station, first saw the child, who was intelligent, apparently well nourished, but evidently inclined to side with the mother as against the father; says that her father drinks, and whips her, but the mother doesn't, though the mother, in private, admitted to me that she does both. The child's story is that on Friday night last (January 22d), while sleeping in a cellar with her father on a mattress on chairs (the family having been turned out of their rooms on Thursday, the mother and other children going to a friends house), she was roused by feeling something "under her;" thought it was her father's finger; then he rolled her over on her back and got on her and worked his body, panting the while; told her to keep her legs apart; slapped her when she cried because it hurt. She says he put his thing against her, into her, and, after a long time, something came out of it, white and sticky, all over her drawers and legs. On Saturday last,—i. e., January 23d, she says it began to hurt her to walk, and to make water. The mother first noticed the child's peculiar gait yesterday (the 27th), examined the child, found her sore, and with a running, obtained her story, and made complaint against her husband. She says she told the child she had a disease from her father, and she said that because last summer he had been with some woman and had used medicine from a dispensary. A lady, who cared for the child a day or two after she had left the cellar, said the child had told her of an Italian and others saying dirty words to her; but, on inquiry, I could not ascertain that any one had ever taken any liberties with her.

Examination.—January 28, 1886, six days after alleged act, inside of thighs near the vulva abraded from rubbing, and the copious discharge from the privates of pus which soiled the drawers and smeared the parts; labiæ but little swollen; hymen intact, and having a puckered appearance; opening to vagina small; vagina angry red; extremely sensitive to touch; child cries when attempt is made to introduce my finger. A drop or more of blood exudes when attempt is made.

On January 29th, I examined the father at the jail. His penis was of average size, but *unusually clean*, even about the glans and under the foreskin, though the man says he hasn't washed lately; that he never does wash himself there. He states that he was once treated for gonorrhea, but that he hasn't had any running for eight weeks. When he squeezed the penis nothing exuded, but, on my applying pressure from perineum forward, a few drops of milky pus were pressed out. The man says he don't know that he touched his daughter, or any woman other than his wife. If he did he was drunk. In a second interview with the mother, she stated that she didn't know anything about her husband going with another woman, but that her neighbors told her he did. She admitted that when she examined the child and he ore the child told her story, she asked her if her father hadn't done something to her.

Remarks.—Notwithstanding the woman's apparent desire to fasten guilt upon her husband because he didn't always give her his earnings every week, and because she believed he had been with some other woman—and notwithstanding the statement of the man that he hadn't had gonorrhea for weeks—I believed him guilty. The facts were that the man had had gonorrhea, and under the influence of drink the gleet discharge had become virulent. Besides, the child, after the alleged act, was obliged to be treated in a hospital for a considerable time, the inflammation showing a tendency to spread. These points taken in connection with the child's unshaken story, and the fact that the man's privates were so

very clean when I examined him, a man doing daily work as a common laborer, all tended to the father's guilt. He plead guilty and was sentenced to five years imprisonment. There was no laceration, probably because man was drunk, and the child did not resist very much. It is but fair to say that one of the attending physicians at the hospital, in whose care the child was, believed that there was no hymen; but an examination of child, February 11, 1886, in his presence, seemed to confirm my view that there is a musculo-membranous wall with a small slit in it, dividing the vestibule from the vagina, viz., a nearly circular hymen.

CASE XX. Rape by Step-father.—Child aged eight years, not very intelligent. March 5, 1886, first saw the child. Her story is that on various occasions when her mother was out, her father got on her in bed, and while sitting on a chair he would put his thing into her, and at various times had handled her privates and had rubbed his tongue against them. On inquiry of the doctor, who had had medical charge of child for some time, as to advisability of arresting the man on suspicion, the doctor would not commit himself, but thought the case ought to be investigated. Other testimony being obtained as to the man's tampering with other little girls, he was arrested.

Examination of Child.—Hymen intact, apparently circular; upper portion of septum bright red; a careful introduction of probe into vagina causes parts to bleed a little; seemed to be no laceration.

Remarks.—Query whether the condition found is due to catarrhal inflammation or injury. It looks as if the man had practiced onanism at least, and so committed rape, perhaps unintentionally. After an adjournment or two the man plead guilty, solely, as he said, by the advice of his lawyer, and was sentenced to ten years imprisonment instead of twenty years, which he probably would have received if he had not plead. He was evidently led to make the plea because he feared the accumulated testimony against him of *several* children.

CASE XXI. Alleged Rape by a Policeman.—Girl aged

fourteen years. Examination March 26, 1886. A little excoriation on the inside of the thighs near the vulva, probably from an irritating mucus from privates or from ordinary chaffing. The vaginal opening was not large enough to admit tip of little finger without causing pain. The attempt caused slight bleeding. The hymen semicircular, seemed more membranous than muscular, like soft new tissue, and in one place seemed as if it had been torn. The only unusual redness was caused by enlarged bloodvessels around the opening of the meatus. The condition of the parts indicated recovery from catarrhal inflammation or injury. The girl was a fair specimen of the children of low parentage who have spent years in a public orphan asylum—seemed to have fair intelligence. Her story is that about three weeks ago the policeman, with whom she was living as servant, came into her room at midnight after she had, but a short time previous, let him into the house after his tour of duty, and that he then got into bed with her, put a handkerchief into her mouth, and then did something to her, entering her and causing pain. When she attempted to cry out, he ordered her to keep still, for if she told on him “he would get fifteen years.” After he was through she says she was all wet and sticky so that she had to clean herself. In the morning she found blood on her and had some pain for two days when she walked.

Remarks.—This case was not tried as there was no physical evidence of rape having been attempted. The statement of a girl of fourteen years who has lived in public institutions, and as a menial in various families, and has been cast about here and there, and is mainly conversant with low talk and vulgar actions, was also to be taken into account. Then, too, if the man had entered her as she said he had, causing her to bleed, the hymen and adjacent parts would probably not have been in as good a condition as I found them to be. The man could not be tried for indecent assault even, for there is no evidence of it, other than the girl’s statement.

Conclusions.—If the reader has carefully read what has

been presented in this article up to this point, he must have noticed in the details of the twenty-one cases certain motives, conditions, and statements which are at variance with one's ordinary conception of such things. He will notice that the presence of the hymen is not by itself a proof of virginity (as the law now defines virginity,—i. e., the non-penetration at any time, even to the slightest extent, of the male organ into the privates of a female); that its absence is no proof of rape having been committed; that even where there is reason to believe it has existed the carunculæ myrtiformes are not always present. He will notice that in cases of rape, lacerations and even severe contusions of the child's privates are comparatively rare, but that an abrasion or two, with connecting enlarged bloodvessels, especially on the inner side of the right vulvar surface, is not infrequent, probably because the penis impinges ordinarily more against the right than the left side.

It is well known to those who have many children as patients, that local injuries and disorders frequently improve, with or without treatment, quite rapidly; and so it happens that slight contusions in the privates of little girls, sufficient to be accepted by a jury as proofs of local injury, may disappear within twenty-four or forty-eight hours after their occurrence. One doctor, after an examination, may honestly report that he found no evidence of local injury, while the physician who saw the case but a few days previously may honestly take an opposite view.

As to the local appearances in cases of suspected rape Vogel truthfully says: "The funnel-shaped condition and marked tumidity of the external genitals so urgently insisted upon in works on medical jurisprudence as symptoms of rape having been committed, can only be of value after frequent repetition of the act, which make the condition well-marked. No permanent alteration of form, not even any decided contusion or tumefaction can ever originate from the simple contact of the glans penis with the hymen."

He will notice that apparently respectable men, as well

as ordinary disreputable characters outrage children; that even fathers, step-fathers, and brothers will do it; and, probably in the large majority of instances, merely to satisfy sexual passion by onanism, rather than to effect complete connection, as would be the case if full-grown women were used. Children are used because more readily obtained and influenced, and because the risk of conception is not run, and because it is believed that the children will be so influenced by threats and fear of exposure that they will not tell they were outraged. So strong is the popular belief that a man couldn't have connection with a female child without lacerating her, and that he wouldn't attempt to have, when lewd women are so plenty, that to say they can and they do is a revelation to many. We are to bear in mind, as physicians, that the size of a man does not necessarily determine the size of his instrument, and we not infrequently meet with men of good size who possess small instruments, hardly above the average of those of good-sized boys. "In a medico-legal point of view," says Woodman and Tidy's *Forensic Medicine and Toxicology*, such a defense as the size of the penis is worthless, because, although the disproportion may prevent complete or perfect intercourse, it does not prevent the attempt which is now justly held to be the essence of crime." According to Wharton and Stillé's *Medical Jurisprudence*, while "a full and complete connection of an adult male with a child of twelve years is manifestly impossible, repeated efforts will produce such a dilatation of the parts as to render it finally practicable." An open or patulous condition of the vulva, but especially of the vaginal opening, has been pointed out in connection with a few of the twenty-one cases detailed in this article as suspicious, indicating repeated handling of the parts or the introduction of some foreign body.¹

¹ Since writing the above a physician related the following: "Recently I had under treatment a little girl, nine years old, of good family, who had had diphtheria. As she had a leucorrhœa I examined her, and was surprised to find the open condition of the vagina. On turning the child on the face to examine the rectum, the vagina gaped open as it would do in a woman who had had children, and yet there is no reason to believe that the child had ever been tampered with."

In our experience the examination of a girl that has not been tampered with at all, or but slightly, reveals the two sides of the vulva very nearly approximated, even when the legs are separated. If there is no hymen, the vaginal opening is small, much smaller than would be anticipated even in a girl of twelve or thirteen years of age, and the introduction of the tip of the index finger and sometimes of the little finger is attended by great discomfort, if not pain. If the hymen is present, the sides of the vaginal opening closely approximate, unless the legs are drawn widely apart. The introduction even of the tip of the little finger shows that the parts are sensitive, and also creates pain. The sensitiveness of the privates of girls is a safe-guard to them, and is lessened mainly by thickening, resulting from inflammation, such as that caused by a vaginal catarrh, or a gonorrhea, or by the repeated introduction of foreign bodies.

We may find on examination a hypersensitiveness of the parts purely the result of a catarrhal inflammation, or a nervous erethism, and, while it is true that, in general, children that are innocent dread an examination, and that those, especially over ten years of age, who have been assaulted take an examination as a matter of course, still some of the latter class, like a certain proportion of adult female prostitutes, honestly dread an examination.

In determining whether rape has been committed upon girls of ten years and over, it is essential to decide whether they are weak-minded and were overpowered, whether they made sufficient resistance physically to assaults, or by outcries compatible with surrounding circumstances, or whether they had not learned to like the alleged assaults, as might especially be the case with some girls just developing into womanhood—just reaching the age of puberty.

The motives for falsely accusing men of rape are so many and so obvious, being merely the expression of the determination on the part of depraved human nature to "get square" with some one for real or supposed injuries, that the fact they exist needs mention only to put us on

the alert. Wharton and Stillé record a case where a man was accused by a mother of communicating gonorrhœa to her child; when on investigation it was ascertained that it was effected by her paramour at her request, so that she could "get square" with the accused man.

It is a curious fact and contrary to reason that an innocent, intelligent, and well brought up girl, as in Case XI., should submit to assault apparently without a murmur. It is also strange that some intelligent children will tell different stories to different questioners as to alleged assaults, but school teachers and parents find the same apparent perversity in regard to other matters. This tendency to vary statements must be estimated by the doctor when he is endeavoring to ascertain the whole truth and nothing but the truth.

In fact the doctor should not be satisfied to pronounce for or against the commission of rape until he has both carefully examined the child physically, and as to the truth and character of her statements. With questions of law, other than what constitutes rape, an attempt at rape, and indecent assault, we have nothing to do. We cannot be governed in our decisions by sympathy for the child, or by antipathy for the alleged assailant. It is facts that we are after, corroborated by other facts, yet there will be times when the best and honest conscientious physician can do on the witness stand or before a grand jury is to say "I believe so and so is the case," and then if allowed he gives his reasons for his belief. The lawyer, on one side, desires his medical witness to be more confident to assert a very strong belief, while the lawyer on the opposite side is willing that he should appear to know as little as possible about the case. There are doctors who believe they have nothing to do with a case, except to ascertain the physical condition of a child at the time of examination, and there are lawyers who desire them to believe thus. Yet a reliance alone upon a physical examination is unreliable, as has already been shown in connection with the cases cited in this article, and will be more manifest when we consider more at length—the

usually stated signs of virginity—the methods employed to distinguish the detection of seminal stains on clothing, and the distinction between leucorrhœa and gonorrhœa.

1st. *As to Signs of Virginity.*—Five are ordinarily given, viz.: (a.) An intact hymen, ordinarily considered the most valuable sign of all in a diagnostic point of view. It is conceded that hymens have various shapes, that they may be ruptured by handling, by clots of blood at the menstrual periods, and by the forced introduction of foreign bodies; (b.) An absence of the carunculæ myrtiformes, generally two or three small excrescences upon either or both sides of the vaginal opening, in reality the remains of the hymen, but sometimes warts, vegetation, etc., are mistaken for the caruncula; (c.) The fourchette, fossa navicularis and posterior commissure entire; (d.) A narrow and rugose state of the vagina; (e.) Plump breasts and elastic nipples, which signs, of course, relate to persons above the age of puberty; (f.) Integrity of the perineum.

Of course the opposite of the above physical conditions in any case would seem to indicate that the individual examined was not a virgin—the greatest value as a sign being placed upon the entire absence of the hymen or the presence of the caruncula myrtiformes. That the presence or absence of the hymen is not diagnostic, has already been shown in connection with cases. Probably its value as an element in diagnosis has been overated, because it was supposed that during an attempt at connection the greatest strain would occur at the vaginal opening, and such an apparently fragile structure as the hymen must ordinarily be broken. The laceration of the nymphæ, but especially of the fourchette and perineum, it is generally conceded can only be affected by violent connection. The fact is that among the many cases of rape upon little girls, seldom is it found that violent connection has been attempted, and as we believe the attempt at rape in many instances is only incidental to the main attempt at self-abuse; or the assailant attempting rape solely, is often under the influence of liquor, and fails to break the hymen. There also seems to be a great differ-

ence as to the strength of various hymens, and even as to their location. In very young children the hymen is not infrequently musculo-membranous and depressed into the lumen of the vagina. As the child grows older it is, as a rule, more nearly on a level with the opening of the vagina, and is thinner and more membranous. Stories are told of their being so thin as to be readily destroyed during menstruation, or by the wash rag in ordinary ablutions. I have sometimes thought they are sometimes destroyed by catarrhal inflammations of the vagina, or by a gonorrhea (see Case V.). Sometimes they are so strong and flexible that they can be stretched considerably without tearing. Probably because the books give so little definite information as to the location and character of the hymen, and there is so little that is definite about it known to medical students, it happens that some physicians have never seen one, or have vague notions about it. The books usually speak of the hymen as crescent shape, attached to the lower edge and to the sides of the vaginal opening, and with its free border projecting into the lumen of the vagina. This description is most often true I think as to older children, or to those who are at the age of puberty, or beyond—when the hymen is membranous. I have been surprised to find how often the hymen is circular, especially in very young children, its free border “circumscribing,” as Sappey (*Descriptive Anatomy*) says, the vaginal orifice.

In the twenty-one cases reported in this article, the hymen was plainly perceptible in eleven, but one of these cases includes three children. In three instances the hymen was very pliable, in one its free border was quite thick, in all the septum was strong. In six of the twenty-one cases the presence or absence of the hymen was not clearly ascertained. In four cases it was absent, but one of these cases included five children.

In connection with this branch of our subject, the following letter received from Dr. A. Jacobi, in answer to an inquiry, is apropos:

“November 10, 1882.

“MY DEAR DOCTOR:

“There are good authors who hold that the absence of the hymen is not proven, but I have met with such absence, and agree perfectly with Prof. Hennig, who makes the statement that it occurs.

“But you know that sometimes, indeed often, its shape is by no means the funnel- or teat-like formation usually found in infants. Its development may be quite irregular, and sometimes in cases of vaginal catarrh which is so very frequent in infants and children from a large number of causes, the hymen appears to exist only as a few prominences, which resemble granulations more than a normal organ. Rape *may have* been committed against an infant *though the hymen be intact*. At that early age the hymen is involved more interiorly than at an advanced age. *But*, rape which sufficed to rupture the hymen in an infant, must have been committed with so much violence as to result in very serious lacerations of perineum and vagina. (But *laceration* of hymen and *absence of hymen* are two different things altogether.) An absence of hymen, one day after the alleged outrage, with a slight swelling and vaginal catarrh and tumefaction of the labia, does not prove violence at all.—It simply proves vaginal catarrh and consecutive swelling. The cases of that kind (that is, without absence of hymen) I have seen by the hundred, and you recall a great many yourself.

“Very truly yours,

“A. JACOBI, M.D.”

2d. *Examination with Reference to the Presence of Spermatozoa.*—As far as I have been able to ascertain, in most of the instances of rape upon children, semen is either not emitted, or if it is, it is thrown upon the thighs and outside of the vulva, and has been ordinarily washed away before the examination. In the two or three instances where I suspected emission into the vagina, a microscopical examination of the fluid found in the vulva and vagina revealed nothing of moment. Probably a micro-

scopical examination should always be made in cases of suspected rape, for spermatozoa might be found when we should least expect to find them; and in failing to do this I have been derelict. As to the examination of seminal stains upon cloth, I quote from a paper by Dr. F. M. Hamlin, of Auburn, N. Y., read before the American Society of Microscopists, at Chicago, 1883.

"Having occasion, last January, to examine some seminal stains on cloth, I sought to avail myself of the experience of others. I found that all writers on medical jurisprudence and microscopy, including such names as those of Taylor, Beck, Beale, and Frey to whom I had ready access, adopt and recommend the method of Dr. Koblanck, of Berlin, published in 1853.

"It is briefly as follows: Cut out the portion of cloth suspected. Place it in a watch glass with a few drops of distilled water; let it soak for a few minutes (variously stated from two to ten); stir it about with a glass rod, and then squeeze out the water with the fingers. This squeezing may be done directly upon the slide or into the watch glass, whence a portion may be taken up by a pipette and transferred to a slide.

"Following this plan with a piece of cloth known to be stained with semen, I obtained such poor results that I resolved to try some other method. Remembering how transparent a fine linen fabric appeared on a certain occasion when I was studying its fiber, I resolved to subject a portion of the cloth itself at once to the microscope. Taking a small piece of the linen and placing it upon a drop of water on a slide, I let it soak for awhile, then put on a cover glass and proceeded to examine it. Almost immediately I discovered a number of spermatozoa clinging to the fibers of the linen or lying in masses in the meshes. Encouraged by this success, I experimented with fabrics other than linen. In light-colored silk the spermatozoa were detected quite as easily as in linen. A firm piece of cotton sheeting proved refractory, till I thought to unravel or fray out the ends, when I readily found the zoösperms adherent to the detached fibers.

"Having experimented with the fabrics commonly used for under-garments, I turned my attention to colored woolen goods. These were not, of course, sufficiently transparent to render the above plan practicable; so with a keen scalpel I shaved off a portion of the stained surface, which fell in a fine dust upon the slide. This was moistened, and after soaking awhile was examined. The spermatozoa were found even more readily than in the other experiments.

* * * * * *

"I, therefore, recommend the following procedures:

"1. If the stain to be examined is upon any thin cotton, linen, silk, or woolen fabric, cut out a piece about one-eighth inch square, lay it upon a slide previously moistened with a drop of water, and let it soak for half an hour or so, renewing the water from time to time as it evaporates. Then with a pair of needles unravel or fray out the threads at the corners, put on the glass cover, press it down firmly, and submit to the microscope.

"2. If the fabric is of such a thickness or nature that it cannot be examined as above, fold it through the centre of the stain, and with a sharp knife shave off the projecting edge thus made, catching upon a slide moistened with water the particles removed. After soaking a few minutes—say five to ten—the powdery mass will sink down through the water and rest upon the slide. The cover-glass may now be put on, and the preparation examined.

"The latter plan serves as well for hairs, but great caution must be observed in cutting them lest the portions bearing the suspected deposit fly away and are lost.

"Whichever plan be appropriate, it is best first to moisten the slide with a drop of water. In the former case, by laying the cloth upon the water we get rid most easily of the air-bubbles, and in the latter the water preserves the powdery portions cut off from being lost, and they are not rolled to one side, as when the drop of water is subsequently applied.

"Should it be desired to preserve any of these preparations for production and examination in court, I have

found that to hold down the cover-glass with a spring-clip, and run around it a circle of liquid marine glue, serves at least a temporary purpose.

"A piece of stained muslin lay nearly two months without protection upon my working table. I then mounted a portion of it in water, as above described. It now, at the end of five months, shows the spermatozoa as well as ever. For permanent mounting I should suppose the addition of carbolic acid, chloral hydrate, or some such preservative would be of service. I have not found it necessary to use any dye or any solvent except water. A power of three hundred diameters is amply sufficient for these examinations.

"Concerning the durability of spermatozoa, Ritter asserts that he has discovered them after a period of four years. To show how, when dried, they will bear rough handling, I may add that I rolled and twisted between my fingers a stained piece of muslin till it was in the form of a string, unrolled and twisted it over again two or three times, using much force; and was yet able by my method to discover spermatozoa without much difficulty.

"I claim for my plan extreme simplicity, ease of execution, and the greatest degree of certainty, for piece after piece of the stained fabric can be put to the test with the assurance that nothing in the process destroys the spermatozoa, and that they may be found if present."

3d. *The Distinction between Leucorrhea and Gonorrhea.*—Vaginal catarrh is so common, either as the result of a scrofulous diathesis, the irritation of worms, or the presence of dirt and filth, especially among the very poor that we can safely assume that most cases of running at the privates that present themselves to us, are cases of leucorrhea, unless we find that the alleged assailant has or has had gonorrhea, that the discharge does not readily succumb to treatment, but grows more profuse, or at least the inflammation associated with it shows a tendency to extend inwards, as in Case XX. I do not know that there is any evidence of a diagnostic difference in the character

of the discharge, either as seen by the eye or through a microscope. A severe benign inflammation, especially if the parts are not kept clean, may cause ulceration, and blood will mingle with the mucus and pus, as it sometimes does in gonorrhea.

Says Dr. Alex. Russell Simpson, in Quain's *Dictionary of Medicine*, "Unless a clear history of infection can be obtained, it is almost impossible to establish a distinction between a gonorrheal disease and the simpler catarrhal leucorrhea. In the former there is a notable tendency to spread to contiguous surfaces. In children suffering from the infectious discharge, traces of the injuries that are usually inflicted at the period of infection should be sought for."

Berkeley Hill writes: "The distinction between vaginitis from contagion and vaginitis from non-specific irritation is always difficult and sometimes impossible, being mainly determined by collateral evidence. It generally has a contagious origin if there is pus in the urethra."

In Case I. the child undoubtedly had gonorrhea. She was ordinarily clean. The man admitted that he rubbed his penis against her privates. He had gonorrhea when he did it. In Case II. there were doubts in my mind as to the child's having gonorrhea, though if it was a leucorrhea, it was from an acute inflammation. The child was not a clean child. Her clothing was dirty, as were those of the persons about her. I could not ascertain that the alleged assailant had gonorrhea. In Case V. there was reason to suspect gonorrhea, as five little girls had a purulent discharge after having been tampered with by one and the same man. Then the inflammation in each case was quite severe, and did not subside quickly to treatment. As the man fled and was not examined, it could not be ascertained if he had gonorrhea. In Case VI. the two and a half year old girl may have had gonorrhea, either from contact with the father, who had a gleet discharge, or with his stained clothing. But the mother had leucorrhea—was as careless as the father as to personal cleanliness. In Case XVI.—of assault on three

girls—the one first assaulted had a profuse purulent discharge, attended by a severe inflammation that did not yield readily to treatment. Though no gonorrhea was found in the man, yet his privates were unusually clean at the time of examination, and it was argued that probably he had a slight discharge at the time of assaulting the first child; that most of it entered her privates; that he wiped himself off before assaulting the second and third child; and as he penetrated them but slightly, if at all, they escaped an attack of gonorrhea. After the assaults, and while in jail, he probably washed out the urethra, removing for the time being any signs of gonorrhea. In Case XX. there was the same kind of discharge and severe inflammation as in the first girl assaulted in Case XVI. In the latter instance it was ascertained that the assailant had been treated for gonorrhea; and though undoubtedly there was an effort on the part of the man to appear clean, yet pus was exuded from the meatus by deep pressure over the perineum.

A LECTURE ON ARTIFICIAL FEEDING.

BY GEORGE BYRD HARRISON, M.D.,

*Professor of Diseases of Children, Medical Department of Columbian University,
Washington, D. C.*

GENTLEMEN.—We are all supposed to know that the typical food of infants is mother's milk, fresh and warm from the human breast; and that there is no *proper* substitute therefor, although under certain circumstances to which we have referred, and others yet to be mentioned (both in the interest of the mother and of the child), we are frequently compelled to resort to certain make-shifts.

With a careful practitioner such a necessity in *city practice* (especially during the *summer* months) is always a cause of *anxiety* and apprehension. According to the observations of Dr. Dalton, "a man in full health, taking

active exercise in the open air, and restricted to a diet of bread, fresh meat, and butter, with water and coffee for drink, consumes the following quantities per day:

Meat,	.	.	.	.	.	453 grammes.
Bread,	.	.	.	.	.	540 "
Butter or Fat,	.	.	.	.	.	100 "
Water,	.	.	.	.	.	1530 "

or, if we take the average composition of meat and bread, and estimate their albuminous, starchy, fatty, and saline matters, together with the water contained in both solid and liquid food, we find that the daily ration is composed nearly as follows:

Albuminous Matter,	.	.	.	.	.	130 grammes.
Starch and Sugar,	.	.	.	.	.	300 "
Fat,	.	.	.	.	.	100 "
Mineral Salts,	.	.	.	.	.	20 "
Water,	.	.	.	.	.	2000 "

If now, by a very simple mathematical calculation, we reduce these estimates to percentage value, we shall find that the typical ration of an *adult* contains,

Water,	.	.	.	.	.	78.4 per cent.
Albuminous Matter,	.	.	.	.	.	5.1 "
Fat,	.	.	.	.	.	3.9 "
Mineral Salts,	.	.	.	.	.	.8 "
* Starch and Sugar (Carbohydrates),	.	.	.	.	.	11.8 "
						<hr/> 100

Let us see now how these compare with the percentages of the same essential ingredients in the typical food of the *infant*—human milk. After the examination of eighty-one nursing women, Vernois and Becquerel concluded that a healthy woman's milk contains in 100 parts

Water,	.	.	.	.	.	88.91
Casein,	.	.	.	.	.	3.92 (1.) Meigs.
Butter,	.	.	.	.	.	2.66
Sugar,	.	.	.	.	.	4.36 (7.) Meigs.
Salts,	.	.	.	.	.	.138
						<hr/> 99.99

Cow's milk (Parkes), sp. gr. 1029 and over.

Water,	.	.	.	.	.	.	86.8
Albuminates,	.	.	.	.	.	.	4.0
Fats,	.	.	.	.	.	.	3.7
Carbohydrates,	.	.	.	.	.	.	4.8
Salts,	.	.	.	.	.	.	.7

There may be a small amount of albuminous material not accounted for here, which is not thrown down when casein is precipitated.

Dr. Arthur V. Meigs,¹ of Philadelphia, seems to have shown that in these and all analyses of human milk heretofore made, while the aggregate of albuminous substances and sugar is correct, the quantity of sugar found has been too small, and that of casein too large, a good deal of sugar, not in crystalline form, being carried down in the precipitate of casein, and adding to its bulk and weight. But accepting *his estimate* of 7 per cent. of sugar, it will be seen largely the quantity of carbohydrates in adult food exceed that in human milk. The relative excess of albuminoids, fat, and salts is also very striking, while the amount of water falls far below. Water being, as *Dalton* expresses it in his rich Romaic dialect, "subservient to the phenomena of absorption, transudation, exhalation, chemical union, and decomposition which make up the nutritive functions of the human frame," we would *naturally* expect it to enter largely into the normal food of infants (in whom these nutritive functions are especially active). As long ago as the times of Galen it was suggested that milk, as a food for the *aged*, would correct the "failures in tissue formation and elimination" incident to advanced years. And you may remember the historical fact that the "terrible Duke of Alva," the invincible Spanish commander, was supported in his latter days by the breast of a woman. Curiously enough, this question of milk as a diet for the old has been revived, and is now agitating the minds of modern hygienists. But perhaps

¹ *Maryland Medical Journal*, August 30, and September 6, 1884, (vol. XI., Nos. 18 and 19.)

the most interesting fact in the comparison which we have instituted is the one first mentioned, viz.: the relatively small quantity of carbohydrates in human milk, as compared with the typical food of adults. It is to this, indeed, that your attention is especially asked; because, from generation to generation the attempt has been made to establish systems of amylaceous diet for hand-fed babies, in the face of Nature's plain teaching to the contrary. Corn starch, arrowroot, tapioca, rice flour, and every other article rich in carbohydrates has been tried and tried until *clinical experience* has pointed out the fallacy which *knowledge* ought to have exposed long before, and has shown that such systems of diet are not only in-nutritious, but positively injurious in the large majority of cases. In the foregoing estimates we have considered both starches and sugars under the general head carbohydrates (making no distinction in their food value), for the reason that starch must, as we all know, be converted into glucose before being assimilated. It is perfectly true that by artificial conversion of the starches before ingestion a larger quantity can be introduced into the alimentary canal without damage, and in some special instances with benefit. It must not be forgotten, however, that glucose itself is *laxative*, and that an excess in the food may do much injury in this direction. But these considerations do not affect the general argument. It is very certain that had a considerable proportion of carbohydrates been demanded by the typical infant system in its first year, the salivary and pancreatic glands, to say nothing of the buccal and intestinal mucous surfaces which supply the so-called ("epithelial ferment," whose office it is to prepare the carbohydrates for assimilation), would not have been in so unsatisfactory a condition to do their work. (Nature is not careless in her provisions.) Nor would mother's milk have been conspicuously lacking in an ingredient necessary to the proper development of offspring.

Let us review the testimony of so able and experienced an observer as Dr. Abram Jacobi on this point (accom-

panied as it is by the endorsement of his accomplished editor, his wife). "In relation to infant diet, the most interesting point about starch is the fact that the typical food—milk—does not contain any. This fact is already a warning that farinaceous food is probably unsuited to young babies, for such food principally consists of starch, and is therefore as foreign to nature as we could well make it. It is, indeed, the only elementary food that is not represented in milk.

"Instead of starch, that must become grape sugar before it can be absorbed, we find milk-sugar already formed and corresponding with this peculiarity, we find that in young babies the apparatus for changing starch into sugar, the group of salivary glands, is very incompletely developed." * * *

"In adult life, moreover, the function of the glands is much influenced by certain nerves, as some branches of the facial nerve, or the nerve distributed to the tongue. When these nerves are irritated, a considerable flow of thin limpid saliva takes place. But, in young babies, irritation of these nerves has very little effect. Not only the salivary glands are imperfectly developed, but the parts of the brain to which these nerves run are unaccustomed to respond to irritation." Again he says, "there is probably no rule for infant diet of more importance than that which regulates the amount of starch which may be given to the child, for errors on this point are extremely frequent, and have most serious consequences. It is the general belief of mothers and nurses that thick food is more nutritious than thin, and hence, almost as a matter of course, they mix corn starch, arrowroot, farina, bread crumbs, etc., in the milk of the youngest child, with whose natural food there is any pretext for interference. Now it would be nearly as rational to thicken the milk with sand. In reality, other things being equal, the thinner the food is the more nourishing it is, for the very simple reason that it is more readily absorbed."

Not only are the salivary glands in early infancy in an incomplete and undeveloped condition, but it has been

abundantly shown, especially by Korowin, of St. Petersburg, that the great organ of starch-conversion, the pancreas, matures its function at a still later period. Indeed, while the former have a feeble diastasic action at birth, the latter is absolutely functionless in this direction until the second month of infant life.

It is hardly necessary to suggest to you the gross impropriety of introducing into the alimentary canal, substances for whose digestion nature has made almost *no* provision and whose presence there, consequently, can but excite severe irritation. But this is not all; in the absence of *diastasic* fermentation another (of an acid sort) takes place, whose injury to the infant constitution is well nigh incalculable, as you will see when we come to the consideration of special diseases.

You will often be called upon, whether you wish it or not, to prescribe artificial diet for the children under your care. *Tuberculosis*, *epilepsy*, and *struma* in the mother, sufficiently marked to forbid, on her part, the exhausting process of nursing, and on the child's behalf the risks of increasing hereditary tendencies to the disease. Typhus and typhoid fever in the mother, because of the prostration incident to those diseases, inveterate diseases of the skin, in short any condition in which the vitality of the mother is unwontedly depressed, or in which her milk is rendered unwholesome to the child by reason of conditions which you have not the power to remedy; death of the mother, destitution so extreme as to necessitate the child's removal to some public institution—and finally, shame to say it, the positive refusal of some unnatural mothers to nurse their little ones, because maternal duties conflict with personal convenience or fashionable indulgence—all these will make it necessary for you to provide a proper wet-nurse, or in the event of inability to do so, or of parental objection to this system, to devise some artificial aliment which shall take the place of human milk. In such cases milk derived from certain of the lower animals unquestionably offers the first and best resource. It is not remarkable, however,

that each variety of milk differs considerably from the human product; and, naturally, it is somewhat mortifying to our race-pride to concede, what is an indubitable fact, that the variety most closely resembling human milk (in the whole range of essential ingredients) is obtained from the *ass*. We need not long be depressed over this, however, as the source is not available for our wants and need not be thought upon.

Next to this comes goat's milk, which, by dilution with water and the addition of a small quantity of commercial sugar of milk, may be made to simulate human milk very closely. Should the reaction with litmus show any trace of acidity, weak lime-water,¹ such as is directed to be made in the new *Pharmacopeia*, may be used in lieu of water in part in the aforesaid dilution.

I am persuaded that more use can be made of these animals for such purposes than is generally admitted. In our city many householders have vacant lots convenient to their dwellings, and available for pasturage; and any deficiency of grass may be made up by fresh hay, or the recent clippings from public reservations, which may be had for the asking and hauling. I make use of them quite satisfactorily in my practice, believing that goat's milk, fresh and pure, is better than the average product of our city dairies. I dare say the objection often raised that it contains an odoriferous principle—"hircic acid"—is to some extent frivolous.

But, however valuable goats may be in this connection, there will be many cases in which you cannot use them, and will have to resort to cow's milk, the best and freshest which can be secured.

By *best* I do not mean richest, for the product of Alderney and Jersey stock is far *too* rich for the purpose, containing too large a proportion of butter. The ordinary grade cattle give milk sufficiently strong in cream. The *physical properties* of good cow's milk, according to Parkes, should be as follows: "Placed in a narrow glass the milk

¹ I do not believe that this formula is an efficient one; hence the description "weak."

should be quite opaque, of full white color, without deposit, without peculiar smell or taste, and when boiled it should not change in appearance. The *specific gravity* varied from 1026 to 1035. A very large quantity of cream lowers it, and after the cream is removed the specific gravity may rise, under ordinary circumstances, 2°. The addition of water may be detected by the specific gravity. At 60° F. there is a loss of 3° specific gravity for every 10 per cent. of water added. No doubt this method is not perfect, but its ease of application strongly recommends it."

The *reaction* of fresh cow's milk is slightly acid, neutral or faintly alkaline. If strongly alkaline it has probably been doctored with alkalis by the seller, or else contains colostrum, or else is from a diseased cow. If strongly acid, it has undergone acid fermentation, and is, of course, not to be used. In order to test its cream strength fill a cylindrical glass vessel, graduated to one hundredths, and note the proportion of cream which rises, at ordinary temperature, in twenty-four hours (the vessel meanwhile being protected from draughts of air). This ought to range from 7 per cent. to 14 per cent.

If you cannot secure a properly graduated lactometer, Dr. Parkes suggests a very simple expedient, viz., that of marking a strip of paper into one hundred equal divisions with compasses, and pasting this on one side of your cylinder. (Tests for cow's milk, Jacobi) should you desire to test the *purity* of milk, several very simple methods are available and of easy application. If adulteration with *starchy* substances is suspected, a small quantity of tincture of iodine added to a portion of the milk will yield a blue color. To ascertain if *gum arabic* has been added, coagulate the milk with acetic acid, and filter; alcohol poured into the serum causes an opaque, viscid deposit. If *soda* be present, the addition of acetic acid, or vinegar, produces effervescence. When you suspect *lime*, add sulphuric acid and filter; nitric acid added to the filtered serum will give a heavy and insoluble deposit of sulphate of lime. There is one substitute for the

natural food within reach of us all (another form of cow's milk), to which, I firmly believe, great injustice has been done by the profession. I mean "condensed milk," and I make the statement because of the large number of healthy children I have known reared upon it (in many cases where other foods have failed, utterly). The strongest objection to it is the difficulty of so dissolving it as to obtain a definite and uniform strength, but, from actual experience, not only in practice but in my own family, I can testify that this difficulty is more imaginary than real.

In the article of Dr. Arthur V. Meigs, before referred to, the following remarks occur: "With regard to the use of condensed milk as a food for young infants, I can only repeat what I said in my former paper, that I cannot believe that any article which has been canned and kept for weeks, or months, or perhaps still longer, can be so good as the same thing when fresh. My analyses show the composition of the dilution of condensed milk commonly used in this city, and they show that the proportion of fat is much too small, and for this reason, partly at least, it fails as a food. Its success is due to the fact that it contains nearly the same proportions of casein and sugar as exist in human milk. Dr. Elwood Wilson is in the habit of directing that, after the first few weeks, a small proportion of fresh cream be added to the condensed milk, and this would render it still more nearly what is needed; this practice, which cannot be too much commended if condensed milk is used, is not, however, at all a common one, withal I am unable to believe that condensed can be as good as fresh milk if properly used."

The author of these observations is betrayed into what he is evidently averse to admitting. If this preparation contains nearly the "same quantity" of sugar and casein as human milk, nothing is easier than to carry out Dr. Wilson's idea and add fat in the shape of cream, and mineral salts too, if need be, until the proportions requisite of all the ingredients are duly fulfilled. One of the most practical objections to condensed milk¹ *which I*

¹ Condensed milk for infants who have much traveling to do.

have never seen mentioned by any writer, is the fact that with many children its use engenders a dislike to fresh cow's milk. Such a dislike as years advance is a misfortune which only a practitioner of medicine can fully appreciate. I know of nothing so absolutely discouraging to a physician when called to a sick child, as to discover that the little patient cannot tolerate milk.¹

But whether we use cow's milk *fresh* or *condensed* (which only means that its water is driven off by evaporation, and sugar added to keep it from spoiling), it is very important that we bear in mind certain peculiarities which differentiate it from milk derived from the human female.

The latter contains nearly 89 per cent. of water, the former about 86.8 per cent.

This difference not seeming very great, some persons, from whom we might have expected better things, have erroneously concluded that cow's milk should be used *undiluted*, even for the youngest infants. They overlook the fact that the *solids* are diluted in human milk to a far greater extent than in the other, as they exist in much smaller aggregate quantity; for the proportion of casein in cow's milk is probably more than twice that in human milk, according to Meigs four times, and that of fat is nearly 50 per cent. more; and sugar, which largely predominates in the human product, is about as soluble as the salts which are found in excess in that of the cow, and, as we shall see later on, does not hinder, but decidedly promotes the work of digestion. Furthermore, the casein of cow's milk is much more difficult of digestion than that of human milk, and on this account requires still further dilution. This dilution effects the object both by rendering the sugar and salts of the milk more assimilable, and thus favoring the production of pepsin, and also by diluting the acid of the gastric juice and so preventing the formation of too hard coagula in the stomach (Jacobi).

You know very well that during the digestive act there is a² "constant circulation of fluids from the alimentary

¹ Dr. Jacobi's opinion of condensed milk ("Infant's Diet").

² Dalton.

canal to the bloodvessels, and from the bloodvessels to the canal. Fluid ingesta containing soluble matters, especially sugar and salts, are very efficient in stimulating and increasing the action of the peptic glands. Schiff has found that when the secretion of the pepsin is deficient, it may be increased by *rectal* injections even of dextrine solutions; indeed, he recommends the practice in such cases of deficiency (Jacobi).

You also know that pepsin is being more or less constantly formed and stored in the gland cells during the intervals of digestion, while the *acid* of the gastric juice is produced during the digestive act. It is exceedingly important that the proper balance be preserved between the proportions of these two essential ingredients. For in infants there is a strong tendency to *excess* of the acid quality, in adults, to a *deficiency* thereof. As we have said, the action of the acid in excess is to coagulate the casein too firmly. Dilution of the milk is the first step towards averting the difficulty; but other measures may be resorted to also. Cow's milk is comparatively deficient in *sugar*; therefore, sugar must be added to it if we would imitate the infant's natural food.

Salts are very abundant, but not always of the proper sort. Farmers are known to be careless in salting their stock; and you know that herbivora being large consumers of such food-material as abounds in potassium salts, need liberal supplies of sodium chloride. Excess of potassium phosphates in the blood demands sodium chloride in excess. Sodium phosphate and potassium chloride result (by double decomposition), and on account of their solubility are eliminated by the kidneys and pass freely out of the organism with the urine (Jacobi).

Since such large supplies of this salt, then, are used up in the nutritive processes of the animal itself, and since the sources of supply are so precarious, we are not surprised that it should commonly be necessary to add a little salt to the cow's milk, which is available for our use. I am sure it is scarcely necessary to remind you of the *importance* of sodium chloride in nearly all of the

processes of nutrition and denutrition. It may be said almost to preside over the function of osmose, and by *osmotic* action nearly all the vital phenomena are maintained.

It is present in all the secretions, and in all the tissues, as Dr. Dalton puts it, "it is undoubtedly the most important of the mineral constituents of the body, as regards its general distribution and its active part in the phenomena of nutrition.

"It is the most *abundant* of all, next to lime phosphates. It forms one of the principal sources of the acid of the gastric juice, and is present in the pancreatic secretion in the very large proportion of 7.35 parts in the thousand" (Dalton).

Phosphates are superabundant in cow's milk for infant necessities; or *would be* if all present were appropriated; but owing to its difficulty of digestion, we have to guard, in its use, against *acid fermentation*, which frequently, as in rickets, dissolves out the phosphates, which are swept away in the urine (Jacobi).

Thus we are brought back to consider what other means than dilution of the milk are at our command in providing for the proper digestion of the casein of cow's milk in an infant's stomach; for this is the first source of those acid fermentations to which we have referred as especially harmful. The reaction of fresh cow's milk of good quality we have seen to be slightly acid, neutral, or faintly alkaline. In those cases in which it is slightly acid, or even neutral, or in any event when it has to be *kept* at all, it is well to add enough lime water or bicarbonate of sodium or potassium, to render its reaction slightly alkaline. It is also well to add to the milk "some bland and easily digested substance, which by mechanically separating the caseous particles, prevents the formation of large masses,"¹ allowing the gastric juice to attack the casein more gradually and efficiently. It is a good rule, in warm weather, to boil the milk as soon as delivered by the carrier.

¹ J. L. Smith.

In the very earliest days of infancy, before the starch-converting function of salivary glands and pancreas is worth taking into account, it is manifestly better to use some indifferent agent of mucilaginous or gelatinous consistency for this purpose. (Jacobi prefers simple gum-arabic.) After the second month a very small quantity of starchy food may be advantageously added to the milk. The cereal grains (especially barley, oats, and wheat) are much the best, and in the order named, as combining albuminous matters, starch, and fat in most suitable proportions.

Lastly, in order to imitate the natural food as closely as possible, our artificial substitute must be given *tepid*, as near the temperature of mother's milk as possible; and it must be given from *nursing-bottle and tube*, by no means "spoon-fashion," or from a cup. The *tube* protects from indigestible lumps, just as mastication does in the adult. Moreover, it secures the *gradual* ingestion of the food. Hasty and greedy feeding is one of the most prolific causes of gastro-intestinal trouble with infants, as well as adults.

Moreover (as Jacobi and others have pointed out), the act of sucking, itself, stimulates the digestive glands to more prompt and thorough action.

There is one matter to which I have not alluded, and to which many *authorities* attach great importance, viz.: the addition of cream to the diluted cow's milk. As a matter of course, if there is not quite 50 per cent. more butter in cow's milk than in human milk, and we dilute the former 200 per cent. (*i.e.*, add twice the quantity of water), we reach a product deficient in cream. But I very much question whether, owing to the recent general introduction of Alderney and Jersey cattle, the usually quoted analyses are safe in this respect.

At any rate it would be well for you to test the cream-strength of the milk at your command before concluding that cream should be added. It is significant that a gentleman of Dr. Jacobi's vast experience does not advocate its addition under ordinary circumstances. I shall not say much of *commercial* varieties of artificial food, some

of which, in certain cases, undoubtedly have useful rôles. You are already familiar with the names of some of them, such as Mellin's and Horlick's (patterned for the most part), *those which have stood the test of examination* after Liebig's formula.

I should certainly not advise you to use an article which, for aught you may know, has been on the vender's shelf for a considerable time, and may have undergone various phases of chemical decomposition, to say nothing of being a *costly substitute*, at best, for what may be freshly-prepared out of easily accessible commodities. But the usual argument of unreliability in manufacture seems to me to have been made too much of; for the desire to retain public patronage in our day is a good guarantee of average composition. Commerce is conducted on principles of exactness which, in some cases, would very considerably enlighten and improve the methods of our own medical science.

There undoubtedly occur in the experience of most practitioners cases of infantile indigestion, in which all rules seem to be at fault. I have known of teething infants, *whose lives have been despaired of by doctor and friends*, seemingly snatched from the grave by their negro nurses, who fed them on particles of corn bread dipped in the "sop" or *gravy* of fried bacon. But it would be a *murderous conclusion* if we habitually adopted such a course with all infants under similar conditions. Chinese men, and strong ones, thrive on a strictly rice or starchy diet. The negro laborers of the South seem best supported by fat bacon and corn bread, *a cereal in which fat is largely present*; indeed, they vastly prefer this to any other form of diet. The "Picaninnies" of Louisiana are said to grow sleek and hearty on the refuse of the sugar boiling. But we would be shallow physiologists if we allowed these isolated instances to shake our faith in the importance to the development of health and strength in the average mortal of a mixed diet, in which albuminous matters, starch, fat, water, and salts maintained their proper relative proportions. I shall defer an enumeration of some

of the desperate measures to which we are sometimes driven in the nourishment of little ones (after all the usual and orthodox methods have been tried and successively abandoned), until we come to the consideration of the particular conditions demanding relief. I will now, for a few moments, digress from our proper subject to speak of cases in which the milk of a mother or nurse becomes deficient in quantity, or defective in quality, and to consider what we can do to remedy such deficiency or defects.

Do not forget, gentlemen, that we are but *animals* of a *higher order*. Every stock-breeder of intelligence will assure you that individual animals differ very greatly in "milking" characteristics. Mere robustness of physical development means nothing necessarily. It does not follow that the lactiferous glands are productive because the *physique* is fine.

But while this is as true as "true" can be, there is nothing more certain, and I can give you my *personal* testimony, than that a cow by proper stalling, liberal feeding and pasturage, industrious currying and rubbing, whatever her capacities, may be made to yield twice, yes three times as much milk as she gave under ordinary conditions. Another thing, every dairyman will tell you that a cow will not "let down her milk unless she is in a good humor." The analogy, I assure you, holds good. Unless your nursing mother be properly housed, and clothed, and properly fed, if the function of her skin be not judiciously promoted by proper bathing and rubbing, and her vital forces stimulated by exercise in the open air, you can hardly expect her to excel as a wet-nurse. Moreover, she must not be harassed in mind any more than stinted in body, or you will be equally disappointed. Irritation of the mother's nervous system has a distinct tendency, through *vasomotor* influence, to diminish the circulation in the mammary glands, and so abate the secretion of milk. And this is by no means all. Profound impressions made upon the mind of the mother due to emotion of any kind,—anger, terror, grief, or what not,—may actually vitiate the secretion and render it un-

wholesome, or even, in rare instances, *fatal* to the nursling, much in the same way as the bite of an angry man, the scratch of an infuriated cat, or the saliva of a hydrophobic dog becomes poisonous to the recipient of its wounds.

The *food* should be mixed in character, not rich nor very highly seasoned, but generous, comprising a goodly proportion of fluid, and consisting of such articles as are opposed to constipation, viz.: fruits, cracked wheat, oatmeal, milk, and milk preparations, chocolate, bromo or cocoa, as well as of the more substantial articles of diet. The popular objection to fruit acids you know to be groundless, inasmuch as the decomposition of them and their salts give rise to alkaline carbonates in the blood. You are familiar with the lemon-juice treatment of rheumatism, a disease in which the urine requires to be alkalinized.

Another fallacy is the idea that the butter of milk may be increased by an excess of fats in the diet, the casein by nitrogenous food, the sugar by starches and sugars, etc. In the words of Foster: "The representatives in milk of the three great classes of food stuffs, proteids, fats, and carbohydrates, are formed *in the mammary gland* by the direct metabolic activity of the secreting cell, out of the comprehensive substance protoplasm." If an illustration of this be necessary, consider the fact that cattle, though fed on articles rich in *carbohydrates*, yield milk comparatively deficient in sugar and rich in casein.

An excess of water in and with the food is indicated in those cases in which the milk is likely to be too concentrated, viz.: when *menstruation* occurs during lactation, when perspiration abounds, as in fevers, and in some forms of anemia (Jacobi).

There are two articles to which, during the nursing period, especially, I am an implacable enemy, viz.: green tea and malt liquors.

The former numbers its female victims by thousands, and the latter is a prolific cause of infantile *eczema*, a disease which you need not "*hanker after*" treating. If stimulants are necessary, use whiskey toddies or sherry wine. Avoid *brandy* or *port*, as well as *malt liquors*, for

they are too constipating. It is advisable to combine milk with such stimulants as are used.

Set your faces "as flint" against the practice of over-lactation. Colostrum corpuscles, which are but an embryonic stage of fat globules, and which should disappear *after the first week succeeding birth*; sometimes *reappear* when nursing is unduly prolonged.

The irritation of the mother's nervous system from overdrain upon it, and the indigestion of the infant from improper and unnutritious food combine with one another to produce a *chaos* of trouble and difficulty. The average child should be weaned at about the thirteenth month, although, of course, no absolute rule can be adopted. But I am straying off too far. These points and many others not enumerated are taught you elaborately in another department.

I have endeavored so far to offer you *principles* rather than *details*. If *principles* are appreciated, *rules*, and *robust ones*, follow as a matter of course.

ON HIP DISEASE IN CHILDHOOD.

[BY G. A. WRIGHT, B.A., M.B., OXON., F.R.C.S., ENG.

Surgeon to the Children's Hospital and Assistant Surgeon to the Royal Infirmary, Manchester, England.

[CONTINUED FROM PAGE 269, MAY NUMBER.]

Apparatus.—It is unnecessary to describe all the various apparatuses which have been devised for hip disease. They are all designed to meet one or both of two great objects, immobility and extension.

Bonnet's "grand appareil" is said to be fairly efficient as far as immobility goes, but it is clumsy and expensive and is now never used. Sayre's splint, which aims at combining mobility with extension, a doubtful advantage at least, is very expensive; it is much better suited for use after excision.

Bryant's, Campbell de Morgan's, and Cripp's splints

are only applicable, of course, to cases while in bed. Of Bryant's I can speak most highly. I consider it the most valuable splint we have for this disease as long as recumbency is necessary, it prevents flexion, ensures "parallelism," and enables the patient to be turned over or lifted easily and painlessly without disturbing the joint.

M. Thomas's apparatus is a very valuable appliance and is undoubtedly the best splint we have for patients able to be up. Though I by no means agree with M. Thomas's views of the pathology of the disease, nor with his general rules of treatment, I most heartily acknowledge our indebtedness to him for his various appliances and do not propose to discuss other questions here.

The splint is of use, first, in the early stages of disease where, as in well-to-do patients, it is possible to give the child the chance of long continued and perfect rest with general hygienic measures and, secondly, after excision to keep the limb quiet for a time until the parts are sufficiently consolidated to allow of movement being begun.

There is always, as the parts cicatrize, a tendency to flexion and adduction of the affected limb after excision, and this must be avoided or a comparatively useless leg will result. As soon as the limb gets firm, it is a good plan to get the patient up and let him support himself and walk a little with crutches and a patten on the sound limb, so that the other leg may hang freely and the weight of the limb will then straighten it and ankylosis will also be prevented; or in such cases a Thomas's splint may be employed to put and keep the limb straight.

The sooner excision cases are got up and about the better; some cases may leave their beds in three weeks, others, of course, are much longer in getting up, the difference depending mainly upon the state of the disease at the time of operation.

I should estimate the time of convalescence after excision as varying from the time mentioned to two years, while in some cases sinuses may remain open much longer if pelvic disease exists. I keep my patients usually in a Thomas's splint for from three to six months after

excision at least; after this the child, if old enough, should get about with a patten and crutches allowing the limb to swing, and only after a year or more should he be allowed to gradually bear weight upon the leg. If the affected leg is allowed to touch the ground too soon it becomes pushed up upon the dorsum ilii, and much shortening results. On the other hand, if the limb is fixed too long it becomes stiff.

It is interesting and important to note that in measuring the amount of shortening after excision the real shortening—as measured from the top of the trochanter to the malleolus on each side, is often trifling and sometimes there is none, while the practical shortening as measured from the pelvis to the malleolus is considerable. This arises from weight being borne upon the limb prematurely, though some shortening will necessarily result. It has already been pointed out that growth in length of the femur takes place practically, entering at its lower epiphysial line, hence the loss of length or true shortening is only the distance from the line of section to the top of the head coupled with such arrest of growth as may result from impaired nutrition, this last being, of course, a very inconstant quantity.

Several attempted substitutes for excision of the hip have been proposed, one was to saw through the neck of the bone and leave the head *in situ*, by this means it was thought absolute rest might be given to the articulation. I have known of one case in which this operation was put in practice, when, owing to an accident, excision had subsequently to be performed, and, so far as I know, the plan has met with no favor, and I think rightly so for obvious reasons.

Macnamara and Greig Smith advise tunnelling through the trochanter with a drill or gouge and so not only relieving tension in the joint but setting up an altered and more active change in the bone by which they hope to get rid of the tubercular products in the cancellous tissue. The idea is a good one, and I have tried it in a few instances, with a good result in one case at least, but

I fear it is not radical enough and only applicable to very early stages.¹

Dr. Fitzpatrick in 1867 advised in certain instances, chiefly in the early stages or where the joint was converted into a "foul suppurating cavity," that the trochanter should be perforated with a knife or trephine, and the cavity treated with a stick of potassa cum colea.

Statistics of cases of excision of the hip from various sources.

TABLE OF 1716 CASES OF EXCISION OF THE HIP.

No. of Cases.	Recovery.	Death.	Remarks.	Authority.
109	71	36	11 doing well; 36 useful limbs.	Sayre.
49	20	15		C. K. Winne.
104	56	32		Barwell.
111	56	53		Hodges.
112	52	60		
73	38	26	42 could use the limb, 14 without support.	Good.
170	72	98	52 died within a month of pyemia and ex- haustion.	Fock, Holmes, and Barwell.
82	57	22		Leisrink.
12	7	2		Gant.
16	15	1		Erichsen.
24	22	2		Hulke.
18	16	2	Collected from 6 hospi- tals.	Morrant Baker.
215	175	40		Macnamara.
15	12	3		Holmes.
18	16	2		Alexander.
45	36	9		MacCormac.
203	175	28	3 of these more than a year after opera- tion; 2 others dy- ing when last seen.	Croft.
250	103	147		Clinical Society Committee.
85	72	11		Jacobsen. (Hueter.)
				Wright.
1716				

The table gives the actual results of excision in a large number of cases than has yet, I believe, been put together,

¹ In one case Mr. Macnamara found that there had been a fresh formation of articular cartilage after drilling, the old cartilage having been thrown off. V. P. Gibney.

and might, of course, be largely added if all the small groups of cases were collected,

The causes of death after excision are either those common to all wounds, viz., the various septic diseases, shock, hemorrhage, etc., or extension of the local mischief or tuberculosis, hectic, lardaceous disease, and so on.

Mortality increases with age, except in the very young (under two years).

Section of the femur below the trochanter, according to Gant's figures, gives 13 per cent. better results than section above it.

Fissure of the acetabulum considerably increases the rate of mortality. In 72 cases 39 or 54.16 per cent. died. A very high rate when we consider that in Gant's 42 cases of amputation at the hip a mortality of only 42.8 per cent. followed.

As to permanence of result Good's 52 cases of cure included in Gant's table were seen, on an average, 19 months and 4 days after.

Hodge gives 230 days as the average period of recovery in his 49 cases.

Alexander, of Liverpool, compares 15 cases of hip disease treated by excision with 15 cases treated without operation. His results may be summarized thus:

The average age of the excision was 15 years, of the non-operated 12 years. The general condition of the cases on admission was fairly similar in the two sets. After excision 12 were living, 8 had useful limbs, 3 were amputated, and one had a useless limb. After treatment without excision 4 were cured, 8 died, one believed to be dead, 2 unknown.

Dr. Alexander concludes that "lateral, local, and locomotor results are twice as favorable where operations are performed," and that the time occupied in treatment is very much less.

The Clinical Society's statistics are well known:

1. 45 cases of excision, 35.5 per cent. died from causes connected with the disease, 13.4 per cent. dying of tuberculosis.

2. The average duration of treatment was $1\frac{3}{4}$ years, the average shortening $2\frac{3}{4}$ inches, and movement was free, limited, or nil in the proportion of 11: 6: 3.

3. Of 203 cases of excision 13.7 per cent. died directly from the operation.

1st. Of the cases treated without excision 260 were suppurating, of these 30.4 per cent. died of causes connected with the disease, 9.2 of tuberculosis.

2d. The duration of treatment was $2\frac{1}{2}$ years, the average shortening in 33 cases was 1.6 inches, and movement was free, limited, or nil in the proportion of 5: $4\frac{1}{2}$: 3.

The primary objects of the operation of excision of the hip are to save life and relieve pain, the next most important question is that of the usefulness of the limb and of the condition of the "joint" after the operation. One of two results must occur after excision, either a freely movable limb or one with varying degrees of stiffness from some mobility to bony ankylosis. Bony ankylosis after excision is very rare. Close fibrous union so that but little mobility remains is very common; movement through from 30° – 50° is perhaps the commonest result, and a smaller number have complete mobility. The first necessity for a useful limb is that it should be able to bear the weight of the trunk and a stiff leg is better than a too mobile one. Gant says the upper end of the femur lodges just above the acetabulum and he has generally got a "firmly fibrous movable joint," and he has removed 4 inches and $4\frac{1}{2}$ inches of bone from the femur, leaving a useful limb afterwards, while Dr. James Morton has published an American case where 6 inches of bone were removed without subsequent shortening. Holmes considers the results of operation are inferior to those of the natural cure and prefers drainage in many cases though not early opening of abscesses (*Lancet*, 1879).

Sayre states that of his 59 cases 39 recovered, of these 20 had motion and less than 1 inch shortening, 8 with motion and more than 1 inch shortening, 2 with ankylosis. Volkmann says, as quoted by Holmes, that half the cases that recover can walk without the assistance of

a stick, and nearly half with one stick. Holmes thinks nearly all, if not quite, walk painlessly and nimbly.

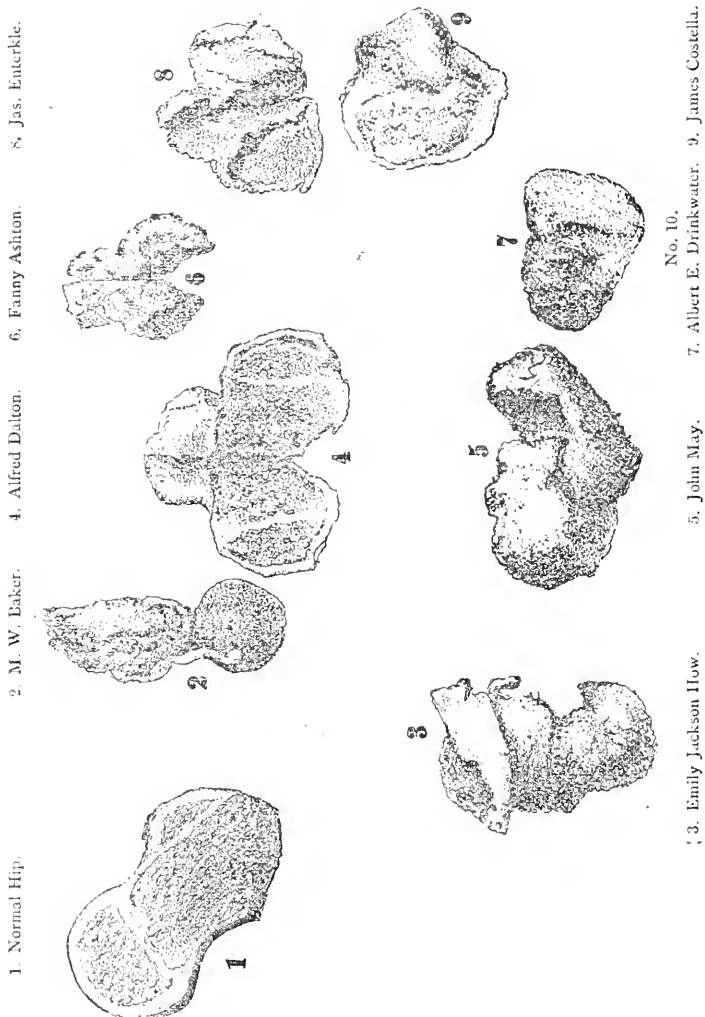
The committee on hip disease (Clinical Society) reported that the limb is generally less useful after excision than after other modes of careful treatment.

Sayre, in his case of osteotomy for ankylosis, describes the reformation of cartilage on the cut surface of the bone, and Ollier, at the Medical Congress in 1881, spoke of regeneration of cartilage taking place after sub-periosteal excision of joints. Where this occurs it no doubt adds considerably to the mobility of the limb and to its smoothness and durability.

In my own cases I have not allowed attempts at walking for a long time after operation, and indeed for long after walking was possible with the object of minimising shortening by pushing up of the femur on to the dorsum.

Hueter, however, believes that in all cases, ultimately, the small trochanter comes to rest in the acetabulum. An examination of my cases of excision of the hip shows that the necessary mortality of the operation is very small; death occurs from extension of the disease, or from tuberculosis, or the affections incident to all operations; excision of the hip in itself is not more dangerous than a necrosis operation elsewhere. Nine of the 85 cases in the accompanying table (July ARCHIVES) only one of the total number of deaths died of the direct results of excision, that is of the operation, though two died shortly after excision from pyemia, resulting from previous incision of the joint (*vide* Table). Hence the operation must not be rejected in childhood on account of its dangers. Next the relief from pain is most marked except during dressing; cases of excision are, as a rule, quite free from pain after the first day. Very rarely is there anything approaching the previous pain of the disease. In cases of progressive nourishing after operation there is, of course, pain, as fresh abscesses form, but this is rather an argument against too late excision than against the operation at all. Mere opening of abscesses and still less expectant treatment can hardly be considered a satisfactory mode of

getting rid of sequestræ, yet in no less than 30 of the cases in the table were there actual loose sequestræ, while in many others there were patches of bone which was practically dead though not loose, *vide* figures. The possi-



Photographs showing the head of a healthy femur in a boy of eight years, and various types of hip disease.

bility of removing sequestra without a formal excision is worth trying in some cases, but it is often impossible to

discover the presence of the sequestra until the end of the bone has been removed or to extract them if found. There are often two other forms of disease in the medulla, which are as great bars to recovery as the sequestræ themselves.

Whether then we consider the pathology of the disease, the actual local condition, the relief of pain, the preservation of life, the duration of illness, the condition of the limb, and its usefulness or the dangers of secondary disease, on every ground, in my opinion, excision is the best course under the circumstances already stated.

For the question of amputation as well as for further details on the whole subject, and for an account of other affections of the hip in childhood, I must refer to a forthcoming work on the subject.³

(TO BE CONCLUDED.)

Current Literature.

The Following Contributions are from the Transactions of the Section in Pediatrics at the Fifty-eighth Meeting of Naturalists and Physicians held at Strassburg, September 18-23, 1885. (From the *Rev. Mens. des Mal. de l'Enf.*, Dec., 1885.)

PFEIFFER, Wiesbaden, *Composition of mothers' milk in cases in which the children are suffering from rachitis.*

Mothers' milk in cases of this character is very little modified, though its salts are sometimes found in very small quantities. In two analyses the lime salts were more abundant than in the normal condition; on the other hand, in two other cases the quantity of phosphoric acid was notably diminished.

All the children whose cases were examined in connection with this paper were nourished at the breast. In all cases the older children in the family by the same mother, and the mother herself were rachitic. The children were well nourished and had sufficient adipose tissue, and the mothers had plenty of milk.

In the discussion *Kassowitz*, Vienna, observed that he did not think that these analyses could elucidate the theory of rachitis. This disease was often seen in newborn infants and in children born before full term. On the other hand rachitis often developed in children three or four years of age, or even older, the food of such children being similar, of course, to that which is used by adults. In either of these cases the disease could not be attributed to the want of phosphoric acid in the means of nutriment.

Unruh, Dresden, thought from the results which had been furnished by the analyses given that the disease does not depend at all upon alimentation, but rather upon some hereditary fault which was most manifest in the youngest children of families which contained several children.

Lorey, Frankfort-on-the-Main, thought that the specific gravity of the mothers' milk in the given cases should have been taken. A very small galactometer could be used for that purpose from time to time. He did not think a child would become rachitic if the mothers' milk contained sufficient cream, and if its specific gravity were as much as 1030.

Portt, Halle, *Concerning the action of cocaine upon children.*

This author recommended the use of cocaine in the treatment of gastro-intestinal affections in children. He had used it in the form of a tincture in such affections, and had also had very good results from its use in whooping-cough. Five per cent. of cocaine was introduced into his preparation and it was applied with a brush to the throat.

Biedert, Haguenan, was in the habit of instilling into the eyes six or eight drops of a two per cent. solution of cocaine as a preparatory step to the operation of strabismus or the removal of foreign bodies from the eyes of children. He had also found that the insensibility to light which was produced by cocaine was a very efficient help in the treatment of blepharospasm and keratitis in scrofulous subjects, which were usually very rebellious.

Hagenbach, Burckhardt, feared that the popularity of cocaine in the class of cases which were under discussion would be of short duration, as the application were, as a rule, not made often enough to obtain decided benefit. Such had been the case with the method of treatment by insufflation of quinine, which for the reason already

given had not been productive of as good results as had been expected.

Von Dusch, Heidelberg, spoke in terms of praise of the use of cocaine for the purpose of obtaining anesthesia of the pharynx and larynx. After two or three applications to the larynx the anesthesia of that organ became complete, the reflexes were abolished, and as a consequence laryngoscopy became easy even with very young children. As the action of cocaine was very transient he questioned whether any curative effect could be obtained by its use in whooping-cough. Its palliative effect, however, was undoubted and beneficial.

Kohts, Strassburg, had often used cocaine in anginose affections and in diphtheria. In angina he found that it diminished the difficulty of deglutition but its effects were very transient. The results which he had obtained in diphtheria were not very favorable because it had not been repeated sufficiently often to produce durable effects. Its use is especially indicated in cases of tubercular ulceration of the epiglottis. Application of a five to ten per cent. solution in such cases greatly facilitate deglutition.

KOHTS, Strassburg, *Tumors of the spinal cord in childhood.*

Three varieties of tumors of this character were distinguished: (1) intra-medullary, (2) meningeal, (3) new formations which are developed in the cellulo-fatty perimeningeal tissue, this last variety being extremely rare, and including also, as far as symptoms are concerned, hydatid cysts of the spinal cord.

The etiology of tumors of the spinal cord is obscure. Sometimes they may be traced to a traumatism of some character, but usually this point in their history is wanting. Their duration varies between three months and several years. The symptoms which they present are those which occur in consequence of compression and excitation of the cord. Sometimes no symptoms are evident, and the diagnosis cannot be made until an autopsy is held. The most frequent, relatively, of these tumors, are those in which there are tubercles of the cord, and tubercles in this location are seldom unassociated with tubercles in the lungs, brain, meninges, etc.

The conclusions of his paper are the following:

(1) It is possible to diagnosticate a tumor of the spinal cord in cases in which, without any appreciable cause, intense peripheral pains suddenly occur with disturbances of motility. The latter are hardly noticeable at first but finally end in extensive paralysis which are analogous to those which are the result of apoplexy.

(2) Tubercles of the spinal cord can be diagnosticated only exceptionally, and then only in cases in which tubercles of other organs occur simultaneously. In such cases also there are pains and creeping sensations in an extremity or in some other part of the body, and troubles of motility which are gradually progressive. The new-formations which are most difficult of diagnosis are those which are developed in the lower segment of the cord, between the lumbar and the dorsal portions. In some of the cases of this variety an entire half of the cord may be involved in the disease process without the appearance of a symptom which would lead to a correct diagnosis.

(3) In cases of peripachy-meningitic neoplasms modifications of the spinal cord are seen which are analogous to those of secondary degeneration, even when there is no solution of continuity in the medullary substance.

RANKE, Munich, *The results of tracheotomy in diphtheria, the patients being treated in rooms which were methodically ventilated.*

Fifty-four cases are reported, the operations having been performed by the author in part at his polyclinic, and in part in private practice. ,

NO. OF CASES.	AGE.	NO. CURED.
4	2 years.	2
6	3 "	1
12	4 "	9
8	5 "	6
12	6 "	8
7	7 "	5
4	8 "	3
1	9 "	0
<u>54</u>		<u>34</u>

That is 54 cases with 34 recoveries, or about 60 per cent.

In private practice the author endeavored to have his diphtheritic patients enjoy the use of two rooms, one being ventilated while the other was occupied; the change being made several times daily. If tracheotomy was to be performed, he preferred to have the patients removed, before the operation, to a pavilion which he used for this purpose, outside the city. He never found that any accident attended their removal by carriage, even when the transfer was made in winter. He made it a rule to operate as soon as possible after dyspnea begins, and if there is only a moderate degree of aphonia. As far as possible he believed in doing the operation slowly and carefully,

and always under chloroform, unless asphyxia was well marked. In his fifty-four operations he had been obliged to use ligatures only six or seven times. The canulæ which he used were of two calibres, one of four and a quarter milimetres for children under five years of age, and the other six and a quarter milimetres for older children. The canula should be changed for the first time only at the beginning of the third day, and each time that it is replaced the wound should be washed with a three per cent solution of phenic acid. The urine of forty-five of these patients was examined, and albuminuria was found in thirty-nine of them.

KASSOWITZ, Vienna, *The involution of the anterior fontanelle*.

This author found as the result of four hundred and sixty-five measurements that after birth the dimensions of the anterior fontanelle gradually diminish until it has entirely disappeared. This is in opposition to the opinion of many authors who hold that during the first year of life it increases in size. Kassowitz expresses his views in the following conclusions.

1. The dimensions of the anterior fontanelle gradually diminish from the time of birth, if the ossification of the cranium progresses normally.

2. The premature disappearance of the fontanelle under the influence of an ossification of the parietal and frontal angles, which is more rapid than normal, ought not to cause uneasiness as long as the sutures themselves are not ossified.

3. An increase in the dimensions of the fontanelle, or a prolonged continuance in the same condition, hydrocephalus being excluded, is a certain index of rachitis.

HAGENBACH BURCKHARDT, Bâle, *The spread of infectious diseases in hospitals*.

The statistics of the hospital for children at Bâle showed that, between the years 1870 and 1885, there were 4562 admissions. Of this number 324, while in the hospital, contracted infectious diseases, which were distributed as follows:

Measles,	33 cases.	Erysipelas,	68 cases.
Scarlatina,	80 "	Typhoid fever,	8 "
Whooping-cough,	34 "	Varicella,	33 "
Diphtheria,	68 "		

Of these 324 cases, 67 were fatal as follows:

Measles,	9 cases.	Diphtheria,	26 cases.
Scarlatina,	19 "	Erysipelas,	8 "
Whooping-cough,	4 "	Typhoid fever,	1 "

The mortality rate in these cases is seen to be very high; this is explained by the fact that the subjects were already weakened by the disease which they had previous to the infectious disease. As to the manner of propagation, in the largest number of cases, scarlatina was communicated from one patient to his neighbor in the next bed. Less frequently it was accomplished through the medium of nurses or physicians. Children who have been tracheotomized are particularly sensitive to scarlet fever. The period of incubation for this disease varies from one day to three weeks or even more.

The method of propagation of diphtheria in these cases differed materially from that of scarlatina. In some cases the parents undoubtedly brought the germs of the disease in their clothing when they came to visit their children. In the majority of these cases, however, it was impossible to say how the disease was contracted. The author believes that those who have suffered or are suffering from bone diseases are not especially predisposed to diphtheria, as has been asserted.

Measles in these cases, seemed to be as dangerous as scarlatina or diphtheria, and the author has long believed in the rigid isolation of those who are suffering from it. Should this disease be complicated with another the prognosis would be as grave as that of scarlatina. In many of these cases the propagation of the disease was from bed to bed. The period of incubation was from seven to eight days. Of the complications pneumonia was seen in ten, pleurisy in one, croup in five, and nephritis in two. Children between one and three years of age were most often affected. The number of children who contracted whooping-cough was rather small because very few with the disease were admitted to the hospital, and because most children had experienced the disease before coming into the hospital.

BIEDERT, Haguenau, *Predisposition on the part of children to whooping-cough, measles, and scarlatina; also the prophylaxis of these diseases.*

This paper was mainly an analysis of an epidemic which occurred in 1879 in a small village in Alsace, beginning in the month of June and lasting until November. Nearly every family in the village was attacked, and the mortality was great. The conclusions which were reached concerning the matter were the following:

(1) It is impossible to decide whether the predisposition to measles does or does not diminish with age, the

gravity of the disease appears to diminish as age increases.

(2) Unusual care should be taken to prevent children under five years of age from contracting measles.

(3) Closing the public school in small communities, in the time of an epidemic of measles, is usually unnecessary.

(4) Children who have been attacked with an infectious disease, and are either in the stage of incubation or of desquamation should, on no account be kept in school.

SCHENK, Berne, *Scoliosis*.

This author thinks it is as easy to prevent scoliosis in children, as it is difficult to cure them after it has developed. He has devised two apparatuses, one of which gives the outline of the child when he is in the position for writing, the other gives the curve which is described by the vertebral column when the child is in the standing position. The result of measurements upon more than 200 school children with the two apparatuses shows that:

(1) Each child has a posture which is peculiar to himself while writing.

(2) Most children when writing, bend the upper part of their body to the left. With some the vertebral column is decidedly curved in the form of kyphosis, the elbows being removed as far as possible from the body when they write.

Different deformities result from these different abnormal positions. Those whose body is habitually inclined to the left while at their desk gradually contract a deviation to the left in the form of a *C*, as shown by the author's instrument (thoracograph). Those who have the body turned to the left, but nearly vertical, contract scoliosis in the form of an *S*, the right shoulder being more elevated than the left. These improper positions are taken in order to facilitate the work of the right hand in writing. In place of these the author suggests:

(1) to throw the upper part of the body backward to a certain extent, and rest it against the back of a chair or a bench. This will require that the back of the chair or bench to be a little higher than is customary and inclined backward. An objection to this may be that the eyes will then be too far removed from the paper on which exercise is being written.

(2) By keeping the vertebral column in its normal situation by a continued tension of the muscles. In

addition to remedying the shape of the seats in the schools, it is suggested that the scholar be allowed to change his position frequently since prolonged immobility of the muscles, which are attached to the vertebral column, will greatly fatigue them if it does not weaken them.

DEMME, Berlin, *The harmful action which is produced upon the system of children by the improper use of alcohol.*

The author has made an investigation concerning the quantity of alcoholic liquors which is used by children in Switzerland. With the material which was at his command, he was able to establish the conditions under which alcoholism and the various psychical affections which are the consequence of it are transmitted from parent to child. Of 53 children, more or less deficient mentally, who came under his care in hospital practice between 1878 and 1884, 29 were the children of parents who suffered from alcoholism. The author also protested against the excessive use of alcohol among children for therapeutic purposes. Two histories were given of children who suffered from cirrhosis of the liver of alcoholic origin, and a number of others in which the prolonged use of alcohol was followed by epilepsy, chorea, and night terrors. As the result of his observation and experience he concluded that spirituous liquors ought to be banished from the means for the habitual alimentation of children, that, in so far as they are required as therapeutic agents, they should be used only by the positive and precise direction of the physician, and that great pains should be taken, when they are required at all, that the quality be first class. The discussion of this paper was opened by *Happe* (Hamburg), who thought that the daily use of spirituous liquors in the alimentation of children, was a wide-spread and unfortunate custom in the north of Germany, parents being in the habit of treating the symptoms of anemia in their children by these means.

Mayer (Aix-la-Chapelle) thought that alcohol should be absolutely withheld from children who are in good health. In febrile conditions, however, such as typhoid fever and pneumonia, he believed that alcohol, administered early in the disease, was very efficacious in preventing collapse and cardiac feebleness.

Dornbluth, Rostock, thought that insufficient alimentation was the principal cause of the abuse of spirituous liquors. The so-called medicinal wines are administered too frequently to feeble and anemic children. These

wines are the more dangerous as they are most frequently mixed with alcohol in other forms. We should always be satisfied as to their composition before recommending their use.

Rauchfuss, St. Petersburg, agreed with the author of the paper as to the abuses of alcohol in the treatment of children. He thought we should find in this agent a far more energetic and efficacious therapeutic assistant if we would be on our guard against its abuse.

STEFFEN, Stettin, *Pericarditis*.

The author thought that this disease was more common among children than formerly. His experience was based upon 32 cases which he had seen in hospital, 4 of them occurring in children under one year of age, 6 in children twelve years of age, and the remainder between these periods. He thought there was no doubt as to the existence of fetal pericarditis, and, himself, had seen a boy two months of age in whom there were evidences of the disease of long standing. In his cases pleurisy was considered a cause in 13, chronic tuberculosis in 9. In 5 cases the pericarditis was preceded by chronic endocarditis, and in 2 by scarlatina. In 1 case typhoid fever entered as a complication, and in 1 other acute articular rheumatism together with endocarditis were present. Of the 32 cases 6 recovered, 4 of them girls, and 2 boys. In the others death was the result rather from the primitive and concomitant diseases than from the pericarditis. The diagnosis of this disease can only be made after a careful physical examination, and it may be entirely overlooked if the effusion is only moderate as to quantity. In many cases the increase of fever and a certain degree of oppression from the first indication of the development of the disease, but the friction sound is necessary in order to establish the diagnosis. After the effusion has become more or less abundant there is a notable increase both in the intensity and the extent of cardiac dullness. Pericardiac effusion is indicated, in the first place, by a considerable resistance to palpitation and percussion. At the beginning of the disease the friction sound is heard principally at the apex, but later it is propagated toward the base. If the effusion is extensive the friction sound disappears, reappearing either when the patient changes his position, or not until the effusion has been absorbed. If the effusion is very abundant, there may be a projection above the surrounding level in the precordial region. If the heart is free in the midst of the effusion, the apex

beat will no longer be felt; in other cases it will be observed at the right of and some distance from the left lower corner of the region of precordial dullness. If adhesions have united the two layers of, the pericardium the situation of the heart will be abnormal and will correspond with the adhesions after the exudation has been absorbed, in many cases the adhesions disappear; but when the formation of false membranes has been very extensive, or the pericarditis is followed by dilatation of the heart, either with or without hypertrophy, the region of precordial dullness is more extensive than is normal. There may also be seen a certain degree of depression of the thorax at the top of the precordial region, and a retreating of several of the intercostal spaces during the systole. The effusion of pericarditis is easily distinguished from hypertrophy of the heart. A transudation into the cellular tissue which surrounds the pericardium may give rise to a zone of dullness analogous to that of pericarditis, but the resistance to palpation and percussion, and the friction sound will be wanting. Acute dilatation of the heart may easily be confounded with pericardial effusion, but here also there is neither resistance to percussion nor friction sound.

A. F. C.

1. HYGIENE AND THERAPEUTICS.

Lawre: Antipyrine Especially with Reference to Juvenile Therapeutics. (*Rev. Mens. des Mal. de l'Enf.*, Feb.).

The cases upon which the authors observations were made numbered fifteen, their ages ranging between two and fifteen years. They were treated for diseases as follows:

Typhoid fever, seven; generalized miliary tuberculosis, two; acute articular rheumatism, one; scarlatina complicated with diphtheria, one; acute pneumonia, one; chronic pulmonary tuberculosis, three.

In the hyperthermia of typhoid fever the temperature seemed to be under complete control, the medicine being readily taken and well tolerated. The appetite also improved and intelligence returned. Six of the seven patients recovered without a complication, the one died from the effects of dothinerteritis of meningeal form. In the case of acute articular rheumatism not only was

the temperature reduced, but the pain and articular swelling were also relieved. The child left the hospital before he was cured. In pneumonia the temperature was lowered but it was thought that the course of the disease in the given case was toward recovery even had the medicine not been given. In the case of scarlatina which was complicated with nasal, ocular, and auricular diphtheria, though the case was a desperate one, the action of the drug was most satisfactory, the temperature being reduced two degrees.

In the three cases of hectic fever of tuberculosis, the fever was rapidly reduced, and general improvement in appetite and strength began. In the case of acute general tuberculosis the result was not favorable; on the first day the temperature was lowered, on the next it became very high and was almost unaffected by the antipyrine. There were also other unfavorable symptoms which were not relieved.

As a result of this experience the author concludes that antipyrine in suitable doses is free from danger, but one must not use it for too long a time and the temperature must be closely watched. It must not be forgotten, however, that it is a convulsive poison, which is slowly eliminated and may do harm from cumulative toxic effects. It will sometimes produce profuse sweating, even when only the ordinary dose is given. In four of these cases its use was attended by an eruption which resembled measles, which caused in one case intense itching. The vomiting which, according to some authors attends its use, was rarely seen by the author. As to its action, it is now certain that it will reduce temperature from one to three degrees C. It acts somewhat rapidly, a decline of 0.7° C. to 0.8° C. being observed within an hour from the time the first dose is given, this dose appearing to be more effective, in most cases, than those which follow. The drug appears to have a tendency to diminish the discharge of urine and also of urea for which reason Jaubowitsch has condemned it. Diminution in the frequency of the pulse is never proportionate to the declination of temperature which it produces. Improvement in the general condition, in the author's experience, followed this lowering of temperature, the effect suggesting the good effect which is often observed after the use of cold baths. Antipyrine is possessed of a certain action upon organized ferments, but it is not desirable to exaggerate that action at present.

Albuminuria is not unfavorably influenced by this substance, in the author's opinion, and the only condition in which it may be contra-indicated, as far as its effects are known, is that in which the discharge of urine is scanty. This fact might lead to an accumulation of the drug in the system, and to poisonous effects. The dosage in children should be fifty, twenty-five, fifteen, or ten centigrams according to the child's age, repeated every three hours, the treatment beginning when the temperature exceeds 39° C. Should the urine become scanty, the perspiration profuse, the thirst, or the eruption be present, the treatment may be suspended and then renewed after an interval of two or three days. The drug is very soluble and may be given in any convenient menstruum. Its use must not be continued so long as to produce subnormal temperature, hence the necessity of using the thermometer frequently. Its use is strictly limited to those cases in which fever is present, and even then cold baths will sometimes be preferable. It seems to be especially adapted to febrile conditions in children.

A. F. C.

Reinard: The Treatment of Diphtheritic Paralysis with Strychnia. (*Rev. Mens. des Mal. de l'Enf.* [from *Deutsche med. Wochen.*, 1885, No. 9], Feb.).

The case in which this treatment was used was a boy three and a half years old, who had paralysis of the lower extremities, and of the velum of the palate, following diphtheritic tonsillitis. His gait was unsteady, his voice was nasaline, and there was difficulty in swallowing liquids. After twelve days of this experience death seemed to be impending. The paresis of the lower extremities had developed into complete paraplegia; there was also complete paralysis of the upper extremities, of the muscles of the nape of the neck, the larynx and the thorax. The child could not sit up straight, nor hold up his head, and there was present aphonia, dyspnea, hollow cough, and tracheal *râles*. Deglutition being impossible, it occurred to the author to make a daily hypodermic injection, in the region of the nucha, of a milligramme of sulphate of strychnia. After the first injection the respiration became easier, and the muscles of the nucha less flaccid. In two or three days more respiration became normal, the tracheal *râles* disappeared, deglutition became easy, and the child now was able to hold up his head. After the injections had been continued for fifteen days he appeared to be cured.

A. F. C.

2. MEDICINE.

Rauchfuss: The Significance of the Term Croup from a Clinical Standpoint, and the Warrant for the same. (*Jahrb. f. Kinderh.*, Bd. xxiii., H. 1 and 2.)

This term was originally without scientific basis, being adopted as the term which was in common use among the people. Brettonneau taught the identity of pseudo-membranous croup and tracheal diphtheria, while Virchow turned away attention from the original significance of the term by the anatomical differentiation of croupous from diphtheritic affections of mucous membranes. Brettonneau admitted, however, the possibility of the existence of pseudo-membranous croup independently of diphtheria, and, in fact, warned his followers against identifying all cases of inflammation of mucous membranes of a pseudo-membranous character with diphtheria. Virchow advocated the desirability of retaining the term croup, and of considering it from a clinical standpoint as a special affection of the larynx and trachea, with a variety of symptoms. Its anatomical divisions he differentiated as catarrhal, fibrinous, and diphtheritic croup. The author expresses himself as in harmony with Virchow's idea, but for casuistic and statistical purposes would divide croup into five categories. (1) catarrhal croup in its mild form, pseudo-croup; (2) inflammatory croup, catarrhal croup in its severe form; (3) fibrinous croup; (4) diphtheritic croup; (5) secondary croup, coming in the course of, or in dependence upon other diseases. Each one of these forms, it is admitted, may be of a diphtheritic nature from a causal standpoint, catarrhal croup being of such a nature only exceptionally, fibrinous croup being such as a rule, and secondary croup very commonly. Diphtheritic croup, in its narrow sense, would include only those cases which show laryngo-tracheal and other local phenomena of a diphtheritic character, or decided symptoms of diphtheritic infection. A further subdivision of fibrinous, diphtheritic, and secondary croup would include those cases which are complicated with fibrinous or diphtheritic tracheo-bronchitis. The causative factor of catarrhal, as well as fibrinous croup, should always be indicated by name, or declared to be not known. Doubtful cases should be referred to that class with which they have most points of resemblance.

A. F. C.

Colrat: Contribution to the Study of Epidemic Pemphigus. (*Arch. f. Kinderh.* [from *Rév. de Méd.*, No. 12, 1884], Bd. vi., H. 5.)

A mild epidemic of acute pemphigus came under the author's observation in the persons of nine children at the Charite Hospital at Lyons. It started with a child who, when received, had some pemphigus vesicles upon the neck. Of the nine who were affected, four were between one and two years of age. One of the chief points of interest in the cases was the opportunity which they gave of testing the auto-inoculability of the vesicles. Four experiments were made, and three positive results were obtained. Vesicles of the second and third generations were produced, which were smaller than the original ones, but very similar to them in general appearance. The author searched for the spore which Richl claimed to have found in the crusts of the dried pemphigus vesicles, but succeeded in finding neither spore nor mycelium. Neither could he find any bacteria in the contents of the vesicles. He was able to find in the fluid, however, in addition to the white blood cells and epithelial cells, micrococci arranged in the form of an 8, in great number, and was also able to obtain pure cultures of the same. He was not able to produce pemphigus with the micrococci. Simultaneously with the epidemic of pemphigus an epidemic of varicella occurred, which enabled the author to make some investigations concerning their reputed identity. One of the children who had been the subject of pemphigus had also had varicella, and, as this is liable to recurrences, the author inoculated the child with the fluid contents from a varicella vesicle; the micrococci of pemphigus were not produced, and a similar lack of success attended inoculation with a culture of the varicella fluid. The diseases were further shown to be dissimilar in the fact that auto-inoculability of the varicella vesicles was not possible; also, after inoculation from varicella, there was the usual general eruption after an incubation period of eight days, while the inoculation of pemphigus produced a vesicle only at the place of inoculation and within twenty-four or forty-eight hours. Inoculation with the contents of the vesicles (of pemphigus) was also performed upon dogs, and resulted in an induration, from which could be expressed a fluid containing the characteristic micrococci. These were cultivated to the third generation, the latter being equally effective in producing the characteristic lesion upon dogs.

A. F. C.

3. SURGERY.

Wagner: Four Operations with Opening of the Peritoneum in Children. (*Rev. Mens. des Mal. de l'Enf.* [from *Arch. f. Klin. Chir.*, xxx. 3], Nov.)

The first case was that of a young girl, thirteen years of age, who had a very large sarcoma of the ovary. There had been frequent attacks of peritonitis, and there were emaciation, insomnia, and polymia, but no albuminuria. Strong adhesions were found between the tumor and the peritoneum, and the tumor and the transverse colon. A fatal result followed in twenty-four hours.

In the second case a girl ten years old had a tumor of the ovary. A few months before being seen by the author she had had a mild attack of scarlatina, and after her recovery her abdomen began to enlarge. Micturition was painful. At the time of operation the tumor was as large as the head of a fetus at term. It had a long pedicle, and was developed from the left ovary. A cure followed the operation.

The third case was in a boy four years of age. A diagnosis had been made of hydatid cyst of the liver, and a puncture was made in the cyst on this supposition with a Paquelin cautery. Not until then was it ascertained that the tumor proceeded from the kidney. It was extirpated and found to proceed from hydro-nephrosis, and the degenerated kidney had a double pelvis and ureter. The patient recovered.

The fourth case was in a girl four and a half years old, and the disease was renal sarcoma. A prominent symptom in this case was almost complete suppression of urine, but no uremia. The tumor could not be removed, and death ensued fifteen days after the attempt to remove it.

A. F. C.

Reverdin: Procedures for Ablation of the Astragalus (*Rev. Mens. des Mal. de l'Enf.*, May.)

The conclusions of this paper upon extirpation of the astragalus and tibio-tarsal resection are the following: The procedures for tibio-tarsal resection may be divided into procedures, with incisions upon the leg, and those with tarsal incision. While the former of these methods will answer very well for the ordinary indications for resection following traumatism, whether primary or secondary, the latter is preferable for resection on account of pathological conditions, since it gives better opportunity to study the nature and extent of the articular

lesion. For tibio-tarsal incomplete ankylosis, with equinus, a postero-external tarsal incision is recommended, good results following, whether there be tibio-tarsal resection or extirpation of the astragalus. If tibio-tarsal resection be practiced, the tendo Achillis and the tendons of the lateral peronei are divided; if, however, the astragalus be extirpated, the tendo Achillis need not be divided. If, after the astragalus has been removed, the malleoli appear to be diseased, the incision can always be completed posteriorly, and more room be thus obtained to resect without difficulty. It would even be possible, after the resection had been undertaken, to change the operation to a tibio-tarsal amputation, with an internal plantar flap, if this course seemed advisable. The procedure which has been recommended has the advantage of leaving the vessels and nerves of the feet intact, of giving plenty of room for examination, and of being easily and quickly performed. Two or three tendons must be divided; but that is not believed to be a very grave objection.

A. F. C.

Ring: **A Case of Phthiriasis Palpebrarum.** (*Med. Record*, Dec. 12.)

A boy ten years of age had upon the left upper lid three rows of cilia, and upon the right two, making a most acceptable place for a prolific reproduction of the parasite. The lids had a dirty, disgusting looking appearance, and upon close inspection each cilium was found to be the recipient of a nit, so closely adherent that it could not be removed without pulling the lash from the lid.

Guidé (Florence): **Noma, Its Pathogenesis and Treatment.** (*Rev. Mens. des Mal. de l'Enf.* [from *Arch. di Pat. Inf.*, Nov. 1885], Dec., 1885).

A recently observed case of this disease presented the following history.

The child was a little girl, five years of age, with a healthy mother, but the father suffered from syphilis and alcoholism. The mother had had two previous pregnancies, but went to term with neither of them. The patient was born at term, was nursed by the mother and became quite a robust infant; her first dentition was completed at the age of eighteen months. When two years old she contracted whooping-cough which lasted six months. When four years of age she had diphtheritic croup, and tracheotomy was required in the course of the disease.

During the following year there was a continued susceptibility to bronchitis, gastro-intestinal troubles, night-terrors, and nervousness. Constitutional treatment, a change of air, and ferruginous salt baths were recommended. After twelve baths had been taken, an abnormal discharge from the genital organs was observed; the baths were therefore discontinued, and an antiseptic lotion for the genital organs employed. The patient grew worse rather than better, and in this condition was brought to the author's dispensary. She was then pale and thin. The urine was thick, cloudy, and passed with considerable effort. The left labium majus was edematous and hard, but not painful to the touch. The mucous membrane of the vulva, vagina, and meatus urinarius were red and swollen, and an abundant discharge came during the day through the small opening in the hymen. Antiseptic lotions and constitutional treatment were prescribed, but the directions were not carried out by the mother, and the child grew worse, manifesting fever, rapid pulse, emaciation, diarrhea, bad breath, cloudy urine, but no albuminuria. The local pain and swelling continued and spread to the surrounding skin and mucous membrane, an irritating grayish discharge excoriating the tissues over which it flowed. The child was kept in bed, and borated applications were made. After several days there was extensive sloughing of the skin and mucous membrane which were involved. Then the Paquelin cautery was used, a deep furrow being burned along the border of the entire diseased surface, and four vertical lines carried through the diseased surface. The wound was dressed with iodoform and with a lotion of boric acid, and a douche of corrosive sublimate solution, 1 to 5000, was also employed. Some fever followed this operation and three doses of quinine were given of two and one-half grains each. On the sixth day, the sloughs having come away, the surface was found covered with healthy granulations. This process progressed favorably and soon afterward the child's health seemed to be entirely restored, though there was decided local cicatrization which may require future treatment. The question arose whether this was a case of *noma pudendi* or of some other affection. All other affections of this character were eliminated for substantial reasons, and the diagnosis of noma was thus established, though the affection began with a hard swelling which tended to gangrene instead of the usual phlyctema.

A. F. C.

Bibliography.

DISEASES OF THE DIGESTIVE ORGANS IN INFANCY AND CHILDHOOD. With Chapters on the Investigation of Disease, and on the General Management of Children. By Louis Starr, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, Physician to the Children's Hospital, Philadelphia, etc., etc. Philadelphia: P. Blakiston, Son & Co., 1886.

The object of this work, according to the author's explanation, is to give prominence to a class of disorders constituting a large proportion of the ailments of childhood, but often too briefly considered in works on pediatrics. To a correct treatment of digestive disorders, a better knowledge of the general regimen of childhood is essential and hence this important subject comes within the scope of the book. The treatise begins with the chapter common to works on general pediatrics, namely, the clinical investigation of disease in children. This is a subject that is apt to present many difficulties to the beginner and to the physician not well versed in children's diseases and hence is never out of place, although appearing in a work devoted to a special branch of the subject. The plan of examination is comprised in three stages; First, questioning the attendants; second, inspecting the child; third, physical examination. Under the second head are comprised phenomena to be observed in connection with the face, decubitus, skin, mode of drinking, cry, fecal evacuations, urine, and vomiting. Under physical examination, the necessary facts are given in reference to respiration, pulse, temperature, general development, conditions of the skin, examination of the abdomen, chest, and of the mouth and fauces. This part of the work while, of course, not new, is well written and contains many interesting facts. Under the heading of difficult dentition we are somewhat surprised at the long list of pathological changes that are supposed often to accompany this physiological process, and likewise the

treatment advised. "Simple diarrhea with yellow, pul-taceous or somewhat greenish stools, is a very common occurrence. * * * Under ordinary circumstances it should not be interfered with, since it is conservative, other complications, especially affections of the brain, being much less likely to arise while it is present." We cannot pass by such statements without uttering a protest, since so many infants lose their lives every summer from the mother allowing a diarrhea to continue unchecked during teething, until it is too late to render effectual assistance. The author's own statements a little later on, when he discusses eczema in connection with teething, will apply very well to this whole subject.

"There can be no question as to the propriety of healing eczema of the face or scalp as quickly as possible. The idea that the cure of the rash leads to more serious mischief, as meningitis or hydrocephalus, is merely a remnant of the long abandoned doctrine that disease is due to the presence of an evil spirit, which if driven from one place will attack another." The period of dentition is one of remarkably active general growth and great nervous instability, and the majority of affections seen at this time are due to other irritations than the evolution of the teeth. It is one of the advances in pathology that one by one the large number of diseases formerly ascribed to teething, are being referred to their proper cause. As an example, the dental paralysis which the author describes, is now known as poliomyelitis anterior, thus affording an adequate pathological explanation of the affection which has been confirmed by autopsy. This is certainly more scientific and satisfactory than the the vague conception of a simple neurosis from teething. Affections of the throat, that constitute such a large share of the illness of early life, are described in a lucid manner. In considering affections of the stomach and intestines the author doubts the existence of what is usually termed "simple indigestion" or "functional dyspepsia." He attributes all varieties of disordered digestion to a distinct tissue lesion which usually takes the form of a simple catarrh. Thus, the common symptom of chronic vomiting is referred to chronic gastric catarrh as a cause. This conception may be of value in influencing prognosis and treatment; at any rate, prolonged indigestion is pretty certain to eventuate in catarrh. The treatment, both dietetic and medicinal, advised by the author is excellent and exhaustive. While chronic vomiting is com-

mon in infants, because the anatomical position and greater irritability of the stomach in the early months of life favor the rapid expulsion of improper or partially digested food; chronic gastro-intestinal catarrh is seen in older children, as the irritating products of gastric fermentation pass the pylorus and induce catarrh of the intestinal mucous membrane. The author divides the latter condition into habitual indigestion, in which the catarrh is moderate in degree; and mucous disease, in which it is intense. The treatment of these common conditions is plainly and satisfactorily laid down. Although more stress is properly put upon dietetic management than upon drugs, yet a number of excellent formulæ are given that are valuable in restoring the diseased mucous membrane. The descriptions of cholera infantum, dysentery, colic, habitual constipation, marasmus, intussusception, and intestinal worms are very good. The discussion of such a symptom as colic, with the suggestions for treatment, will be profitable reading to many who have been puzzled by fretting infants. Diseases of the liver are described more at length than their frequency in early life would perhaps seem to warrant. According to the author fatty and amyloid changes are the most common affections; syphilitic disease, cirrhosis, tubercular deposit, and parenchymatous inflammation stand next in order; while echinococcus is very rare, and cancer almost unknown. Congestion of the organ and jaundice are often encountered. The last part of the work is devoted to a consideration of the general management of children. Explicit directions as to diet and general hygiene are given, suitable to different ages. Many valuable hints may be found in this chapter. The publishers deserve credit for the clear type and attractive make-up of the book.

H. D. C.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

JULY, 1886.

[No. 7.

Original Communications.

SURGERY OF THE GENITO-URINARY ORGANS
IN CHILDHOOD.

BY DE FOREST WILLARD, M.D.,

*Surgeon to the Presbyterian Hospital, Lecturer on Orthopedic Surgery,
University of Pennsylvania, etc.*

[CONTINUED FROM PAGE 201, APRIL NUMBER.]

PHYMOSIS.

An adherent and contracted prepuce is a normal state at birth in all male infants, or to speak more correctly, adhesion is always present with apparent contraction.

This condition is doubtless due to an interlacing of the network of fibres in the protoplasmic cells of the rete Malpighii, which cells harden about the time of birth.

True contraction is rare during early infancy, and the adhesion at this time is very slight. The latter becomes more firm with advancing years, but is usually relieved by the boy's own manipulations before he reaches the

age of ten. The retention of smegma or a slight balanitis may also convert a seeming contraction into a true one.

This retained smegma, as a rule, seems to result in no serious injury, but in a considerable number of cases the irritation produced by the hardened masses not only conduces to priapism, dysuria, symptoms of stone, cystitis, general mal-nutrition, and nocturnal incontinence, but also to paresis, chorea, convulsions, and various reflex nervous phenomena.

The long narrow foreskin of a child at first gives the appearance of contraction, but if the skin be gently and patiently pressed backward for a few moments the opening, almost pin-hole at first, will be seen. As the prepuce recedes upon the stiffening member, the meatus will appear. Often the adhesion will be found to commence just behind this orifice, but no instrument other than the operator's thumbs will be required. The force requisite to peel off the rind of an orange will speedily strip the prepuce from the glans and carry it behind the corona, when the smegma can be removed and an emollient ointment applied. Restoration of the prepuce to its original position should be accomplished before turgidity of the glans occurs. In case of delay or difficulty, a couple of probes or hair-pins answer admirably for sliding the skin back into position.

The use of a probe or grooved director to tear up the adhesions is rarely though sometimes necessary. Dilatation by dressing forceps or special phymosis forceps is only occasionally required. Uterine dilators, tracheotomy forceps, and various forms of instruments specially constructed have been used for this stretching process, but as one increases in dexterity from practice he will find them of but little importance, as stripping by the thumbs is ordinarily easily accomplished.

Slight edema, and painful micturition will follow this operation for a few days, but emollients are sufficient for relief. A hot hip-bath will greatly facilitate the passage of urine. Retraction and cleansing should be persistently

employed thereafter, and the nurse instructed that daily attention is to be practiced. Later the patient should be taught to wash the penis just as he washes his face and hands for cleanliness sake.

There are many who deny that reflex phenomena are caused by phymosis, but the proofs are too positive to admit of disbelief, and Sayre deserves much credit for emphasizing the importance of this adhesion in the production of ataxic conditions. One may well differ from him as regards the remedial measures required, but not as to this causal element in muscular incoördination.

I have before contended¹ and still maintain that the most perfect penis and the one least liable to disease or to induce masturbation is one in which the prepuce moves freely over a normal glans, and that this can be secured in nearly all young children by the simple stripping already described. In a few cases, when this result is not attainable, circumcision may become necessary; and when failure to produce the desired freedom occurs, I do not hesitate to practice the more severe operation. In large boys and in adults all the circumstances are different, and dilatation is rarely beneficial without removal of the foreskin; but in infants and in boys from two to eight one need rarely ask for better results than are secured by the thumbs alone.

Dr. Ellwood Wilson, who for many years has had one of the most extensive practices in this city, recently informed me that he had employed stripping of the glans since my recommendation of the operation in 1883, and that he has now acquired such dexterity of manipulation that he could uncover the glans in almost every young child without the use of any instrument. He now rarely resorts to circumcision, although he formerly practiced it largely. His experience coincides with that of all who have tried the plan. Until the surgeon has acquired this skill, it will be well for him to retract the fold as far as possible, and while holding it firmly in this position to

¹ Philada. Medical Times, June 30, 1883.

sweep a probe around the circumference of the head, thus loosening the anterior adhesions. Retraction, which before seemed impossible, will now be a simple matter, since it is the adhesions that produce the apparent contraction. The operation may be done as early as the second day of life.

The retention of the head of the organ beneath the foreskin is said to debar the individual from the full enjoyment of sexual intercourse in later years, but as there does not seem to exist any crying need for incentives in this direction, and as the obtunding influence of friction upon the exposed epithelium is similar in its action and especially as there is no need of any glans being covered provided early stripping is practiced, I still believe that a non-adherent prepuce is the healthiest condition. Moreover, a glans covered by a freely sliding foreskin is certainly better capable of appreciating the sexual orgasm than one that is calloused. A penis with blunted sensibility is sometimes driven through the recto-vaginal wall during coition.¹ Cold water used daily is also more helpful than circumcision in the prevention of disease.

Contraction of the meatus which so often results from friction upon the delicate surface after circumcision is almost as productive of brain irritation as is the accumulation of smegma.

Otis writes² that a contracted meatus may cause serious mental depression, epilepsy, loss of muscular power, etc., which symptoms have all been relieved by enlargement of the narrowed orifice. Denslow³ also reports epilepsy, general depression, melancholia, feeble locomotion, etc., as cured by stretching of a contracted meatus.

It has already been stated that circumcision is occasionally necessary in children and frequently in adults.

¹ Jour. Amer. Med. Assoc., June 5, 1886.

² Transactions American Dermatological Convention, 1884.

³ Transactions American Dermatological Association, 1884; also N. Y. Medical Record, Nov. 7, 1885.

The rule should be to expose the glans freely for cleansing purposes whenever the slightest irritation arises. This condition should be secured by a cutting operation provided the simpler method fails.

In skillful hands this will be at rare intervals, but when required in infants with excessively long and narrow foreskins, the removal of a ring is better than slitting up the fold, since thickened masses on either side of the frenum are liable to follow the latter operation and greatly disfigure the organ.

Cocaine has recently been largely used for obtunding the sensibility of the region and thus abolishing ether; but if used hypodermatically at various points, the pain of the punctures, together with the irritation of the drug, and the delay in waiting for its action, are not in its favor. The frequent bathing of the prepuce and glans and the retention beneath its folds of a strong cocaine solution will, however, greatly benefit in any case where an anesthetic is undesirable. If employed, the gum ring around the base of the penis should always be used to control the circulation.

Freezing by ether spray gives pain before, during, and after operation.

A large number of forceps have been devised for this particular operation, many of them ingenious and useful, but entirely unnecessary since a bistoury and forceps are equally good, and are always at hand. The section can always be made anterior to the forceps. Care should be taken in the ordinary circumcision to draw upon the mucous layer more strongly than on the skin, and thus remove a sufficient portion of the former, since if this is not done, slitting and trimming is necessary to remove the contraction, followed by careful stitching. Wire is no better than silk and is much more annoying and painful during the next few days. On account of the great edema of the loose connective tissue which is sure to follow, black sutures are more easily distinguished than white ones. In order to secure the most speedy union, the wound should be washed with a 1 to 5000 bichloride

solution, and covered with a large wad of feebly sublimated cotton, which can be renewed at each urination. The best bandage is an ordinary diaper. The vessels will rarely require either a silk or catgut ligature. Hemorrhage is rare, even when the Jewish Rabbi tears back the mucous layer and applies no sutures. A fatal case is occasionally, however, reported. The stitches should be removed by the fourth day, and undue inflammation subdued by cooling lotions.

If the blood is thoroughly pressed out of the organ and a gum ring slipped over its base, there will be little or no bleeding.

The plan of slitting upon the dorsum or on the sides, is not a good one, and in careless hands the urethra even has been divided. Blood-poisoning and death have also followed the use of septic instruments in a simple circumcision. It has been stated that Hebrews are less addicted to masturbation, and are less subject to syphilis, but my experience does not accord with this view unsupported as it is by facts.

In summing up it can be said that stripping in young infants is one of the simplest and easiest of operations. In children it is still easily accomplished in the majority of cases by the help of a grooved director or probe. After twelve, if the glans has not been uncovered, circumcision will usually be necessary as dilatation is rarely successful in giving that freedom of motion which is essential in all cases.

Exposure of the glans is always necessary for cleanliness sake, and should be secured without fail whenever any nervous or reflex symptoms are present.¹

In girls adhesion, hypertrophy, or hyperesthesia of the labia may induce a nervous irritability at a very early age, which is often followed by a loss of coördination, or by spasmodic movements.

Only a few days since, while operating upon a little girl for umbilical fistula I discovered a very strong adhe-

¹ Lists of the literature of this subject can be found in Philada. Med. Times, June, 1883, and New York Med. Times, September, 1884.

sion of the labia minora entirely closing the orifice of of the vagina, save at a point opposite the urethra.

Adhesions can be easily broken up either between the nymphæ or around the hood of the clitoris, and enlargements can be removed. Excessive irritability is relieved by astringent and anodyne lotions.

HYPOSPADIAS.

Hypospadias is that condition of the urethra, in which, owing to the absence of a part or a whole of the lower wall of the tube, the opening for the escape of urine exists at some point between the extremity of the glans and the neck of the bladder.

In its slightest degree, the opening may simply be upon the under surface of the glans; in its severest form, associated as it is with cleft scrotum and cryptorchidism, the sex of the individual may necessitate careful external and internal examination for its proper identification. Even in the lesser degree the flattened and furrowed recurved glans, the shortened spongy body, the redundant preputial hood, and the generally distorted member demand earnest and patient remedial measures.

Sometimes the urethra is perfect in front of the opening; more frequently it is absent, or is indicated by a groove. The cause of hypospadias is undoubtedly an arrest of development, or a want of union between the arches as they rise from the urogenital sinus. The scrotal portion of the tube being formed early, from the external genital buds, is not as prone to be the subject of deformity, but when the aperture is near the glans other malformations usually coexist as short frenum, deficient corpus spongiosum, webbed penis, etc.

Heredity is often seen as a cause, and it is stated that one child in three hundred is afflicted with this condition.

Treatment.—The relief of hypospadias demands the hearty coöperation of parents in carrying out the surgeons plans, since a number of operations may be necessary. The operations of Bouisson, Nélaton, Ander, Theirsh,¹

¹ Archives G n rales de M decine, May, 1874.

Duplay, and others are variously employed, but the object of each is to construct a new tube by uniting the adjacent sides of the corpora cavernosa. The most satisfactory plan is the one of Duplay,¹ in which three successive steps are made.

1st. Straightening of the Penis.—This is accomplished by multiple sections of all the tissues that interfere with a proper erection of the organ, especially the strong mucocutaneous fold. I can most heartily endorse the importance of this step since with numerous and deep incisions, even into the corporal sheaths, great benefit can be secured. An incurved and distorted penis is a source of great mortification to a boy from five to fifteen, and it is advisable that operative measures be commenced as soon as the ordinary diseases of infancy have passed, *i. e.*, at the completion of the first dentition. Incision and thorough stretching during anesthesia will give a useful member and prepare the way for the next step, which should be deferred until the danger of secondary cicatricial contraction has passed, say about eight or ten months.

Webbed penis should be freely separated from the scrotum.

2d. Formation of New Urethra in Front of the Opening.—The method of performing this portion of the operation will depend upon the situation of the hypospadias. If so near the extremity that ejaculation will be nearly normal during coition after the penis is straightened, the orifice may be simply dilated and the results watched in later years.

Should a short tube exist anterior to the opening, together with a closed meatus, the latter should be incised and dilated and the two sections united later.

In the penile and scrotal varieties of the deformity it becomes extremely important that closure should be accomplished, since not only is micturition difficult, except in the posture assumed by women, but fruitful cohabita-

¹ Ashhurst's International Encyclop. Surg., vol. vi., p. 493.

tion will be impossible in later life, since the semen will escape outside the vulva.

The parings are to be made longitudinal to the urethra, and reflected over an introduced catheter. The exceedingly small size of the organ and the movability of the skin, make the operation a tedious one. The flaps are sometimes made so that their raw surfaces are placed inward (a plan likely to result, in stenosis); at other times the cutaneous side is made to form the tube, while granulations fill in the divided surfaces. No tissue should be sacrificed, and the redundant prepuce should be utilized when necessary. Duplay strengthens his flaps very wisely by utilizing the lateral tissues of the penis. His incisions run parallel to the urethra, the tissues on the inner side of the line being dissected up so as to cover about one-half of the introduced catheter. Outside of the cuts the skin is freely loosened so that it can be drawn to the median line. This gives a covering of cutis to the catheter in its deeper half, while the more superficial portion is closed in by raw surfaces which are also brought into apposition with the raw portions of the deeper flaps. A cross section of the flaps would resemble the two sides of a house roof prolonged to the ground and enclosing the upright walls.

The catheter is, of course, only the hard foundation upon which to build the arch, and can be removed the first day, as any cylinder will answer as well. The urine will escape as usual through the hypospadiac opening which is not to be touched until a later operation. Quilled sutures answer best, a single fine wire being carried deeply through the tissues and fastened by a shot upon the strip. The skin may require separate interrupted silk sutures. It is rare to obtain union throughout the entire extent of the tube, but a second vivification will usually be successful.

Another excellent paring is made by dissecting a long flap upon one side of the urethra, going well out upon the side of the penis and then carrying it over a catheter, skin inward, to attach it to a short flap on the opposite side.

The 3d step of the operation consists in *uniting the original urethra to the new one*. This is accomplished by paring the edges of the opening and suturing them over a catheter which is to be worn for three or four days.

When scrotal cleft and spurious hemaphroditism exists, no rule can be laid down for procedure, since each case will require operative devices suited to the special deformity.

EPISPADIAS.

Epispadias is a deformity caused by the absence of a portion or of the whole of the upper wall of the urethra. When the canal ends just behind the glans, the condition is denominated a *glandular* epispadias, but when complete it is called *penile*. In the latter case there is nearly always an absence of the pubic bones, and exstrophy of bladder is not infrequently associated with it. Arrest of development would suffice to explain the minor degrees of this malformation, although it at first seems strange that the urethral tube could lie at the dorsum of the organ. It should be remembered, however, that this malformation is not simply one involving the spongy body but also the corpora cavernosa, and that any deviation in the reflection or union of the vascular fasciculi or of the superior external genital nodules of Coste, or any disparity in time in the development of the internal and external organs of generation would easily bring about the deformity.

Practically, the non-union of the corpora cavernosa, and the falling apart of these two sections, together with the absence of the upper urethral wall renders visible the floor of the tube.

For the remedy of this defect several operations have been devised, but all are to a certain extent unsatisfactory, and several attempts are often required before success is attained. Duplay's¹ operation seems to offer the best chance of success, since the fresh surfaces are made

¹ Ashhurst's International Encyclopedia Surgery, vol. vi., p. 500.

from the sides of the out-rolling cavernous bodies, and dependence is not placed so much upon integumentary flaps as in the Thiersh and Nélaton procedures. The organ is first straightened by multiple incisions, then a new tube is formed from the extremity back to the epispadic opening, and as a third operation the two portions of the urethra are united.

In order to form the canal the separated corpora are drawn together, after freshening, by quilled sutures, and are thus made to form a strong upper urethral boundary. The redundant prepuce is utilized by making a slit in its raised flaps and by passing the glans through this, using the tissue as a dorsal covering for the new tube.

In the plans which rely upon the integument, one flap is thrown over the freshened chasm with its skin surface urethra-ward, while its raw aspect is covered by the fresh portion of another flap taken from the opposite side. When the penis is too illy-formed to supply these tissues, they may be taken from the scrotum, or the prepuce, or the thigh.

Incontinence is sometimes but not always prevented. Exstrophy of the bladder if coexistent should receive early attention.

(TO BE CONTINUED.)

THE ETIOLOGY AND TREATMENT OF THE SUMMER DIARRHEA OF INFANTS.

H. C. HAVEN, M.D., BOSTON, MASS.

Instructor in Diseases of Children in the Boston Polyclinic.

According to the United States Census of 1880 Massachusetts has a percentage of total deaths under one year to aggregate deaths, of 21.99: the lowest state but one, Pennsylvania.

Massachusetts has a percentage of total deaths from diarrheal diseases to aggregate deaths, of 7.83, only four out of the thirty states ranking lower, and yet in this

state in 1884 there were 2,089 deaths from cholera infantum; and in the twenty-two years, from 1863 to 1884, 40,006 infants died from the same cause.

These figures only partially show the total mortality of the state from diarrheal diseases under one year; as according to the State Registration Report the number of deaths in Boston from cholera infantum in 1884 was 504, by the fuller report of the City Board of Health the number of deaths from diarrheal diseases in infants was 710, a difference of 206.

Table A. shows the percentage of deaths from the different miasmatic diseases for the two periods of the five years, 1880 to 1884 inclusive, and the forty-three years ending Dec. 31, 1884. It will be seen that cholera infantum heads the list with a percentage of 5.42 for the last five years, and 4.82 for the last forty-three years; typhoid fever being its nearest neighbor with percentages of 2.54 and 4.23 respectively.

TABLE A.

PERCENTAGE OF DEATHS IN MASSACHUSETTS FROM SPECIFIED CAUSES
FOR FIVE YEARS AND FORTY-THREE YEARS.

<i>Causes of Death.</i> <i>Miasmatic Diseases.</i>	<i>Percentage of all Deaths.</i>	
	Five Years, 1880-1884.	Forty-three Years, end'g Dec. 31, '84.
1. Small-Pox	0.07	0.52
2. Measles	0.50	0.75
3. Scarlatina	1.33	3.51
4. Diphtheria	3.69	2.37
5. Cerebro-Spinal Meningitis.	0.41	0.23
6. Quinsy	0.06	0.08
7. Croup	1.54	1.94
8. Whooping-Cough	0.67	1.02
9. Typhoid Fever*	2.54	4.23
10. Erysipelas	0.62	0.69
11. Metria (Puerp. Fever)	0.31	0.22
12. Carbuncle	0.04	0.02
13. Influenza	0.05	0.17
14. Dysentery	0.93	3.03
15. Diarrhea	1.31	1.29
16. Cholera Infantum	5.42	4.82
17. Cholera	0.27	0.51

* Including fever, typhus fever, continued fever, and bilious fever.

Of the twelve most prominent causes of death at all ages in Massachusetts for the twelve years from 1875 to 1884, only two, pulmonary consumption and pneumonia outrank cholera infantum.

Of the five most destructive causes in children under five years of age, for the five years from 1880 to 1884, cholera infantum again leads with an annual total of 2,081 out of 11,961 deaths, the next most fatal cause being pneumonia with about one-third the number: 705.

This enormous yearly loss of life, from a disease which is admitted on all sides to be preventible, clearly proves that one or both of the following propositions are true.

1st. Our knowledge of the causes of the "summer diarrhea" of infants is not sufficiently complete to enable us to prevent, or successfully cope with the disease.

2d. There is a lack of appreciation of, or inability to arrest or modify, the action of the known causative and exciting influences.

Both of these propositions I hold to be true, but believe the second to afford the explanation of the frequent occurrence of the disease and the great mortality caused thereby.

It is not my purpose to attempt any statement of the pathological conditions existing in this disease; they are different and of differing severity. In the present state of knowledge regarding these changes—especially the microscopic ones—a classification of intestinal diseases in infants founded on pathological anatomy is unsatisfactory. The clinician meets with symptoms of varying severity associated with inconstant pathological changes. Slight lesions only, or none at all, are found in cases where life has been terminated by the severity of the attack, and on the contrary a severe inflammatory condition of the intestine may have been evidenced by only slight symptoms of intestinal disturbance during life.

Nor do I wish to touch on the vexed question as to whether certain or all forms of diarrheal disease in infants are caused by a specific germ or germs; this is still *Sub-Judice*, and foreign to the intent of this paper.

The summer diarrhea of infants is a clinical entity. It is the cholera infantum of the laity, and unfortunately this name is still widely used by physicians.

Although apparently more exact, in reality (as the term is at present used) it is less so than that of summer diarrhea, which is coming into more general use. This latter term, although a symptomatic one, gives a tangible synonym for a group of constantly concurrent phenomena, for which we may seek a common exciting cause and so far render our treatment more rational, while awaiting farther knowledge as to the *ultimate cause*.

By the term summer diarrhea then I mean the same disease that our State and City Health Boards term cholera infantum, and in studying its occurrence in Massachusetts, all cases of fatal diarrhea in infants under one year of age *should* be included.

The following figures furnish the justification of the descriptive term "summer" to the disease. Of the 40,006 deaths above mentioned 35,962 occurred in June, July, August, and September, and of the remaining 4044, 2411 occurred in October; undoubtedly sequelæ of summer cases.

The question of identity in cause and nature of the diarrheal diseases occurring during the summer and at other seasons does not come directly under discussion.

To return to our first proposition: (Our knowledge of the causes of summer diarrhea of infants is not sufficiently complete to enable us to prevent or successfully cope with the disease.) We can only demonstrate its truth or falsity by reviewing what is at present known in regard to the ultimate and exciting causes.

It will I think be universally admitted that in its totality it is a zymotic or fermentative disease. It is so classed by all statisticians, and the question as to its ultimate cause must be held in abeyance till the knowledge is acquired which shall determine this; not only for the disease under discussion but for the group of allied diseases.

There are three conditions, or sets of conditions, which of late years have been generally considered proximate causes or co-acting sets of causes.

A. Atmospheric and telluric conditions; the air temperature being best established in its causative relation.

We must accept the fact that the great increase in diarrheal diseases comes always in the hot season: *i. e.*, a continued high temperature inevitably brings in its train an enormous increase in the infant mortality from these diseases. This is a matter of popular as well as of scientific knowledge; and a high air temperature, either alone or acting in conjunction with other causes, or again other causes or conditions,—whose appearance and disappearance however are *synchronous* with the increase in temperature,—must be admitted as an exciting factor or factors.

It is necessary here to mention that it is a most difficult matter to determine, not only how much effect as a cause the heat in itself,—*i. e.*, apart from accompanying atmospheric or telluric conditions,—may have; but also in what way it exerts its influence. Does it produce the disease simply by its direct effect on the individual's nervous system, as some claim; instancing the resemblance in many cases, which is often striking, to thermic fever; or by its depressing influence on the nervous system does it render the individual more susceptible to other causes; or again, does it act simply by inducing fermentative and other changes in the food, which in their turn cause the disease?

This last series of questions are somewhat outside of the inquiry in hand, but an opinion must be formed, so far as possible, to enable us later to discuss rationally the proper treatment.

There can be little doubt but that heat does act in these three ways to produce the disease, and the extent and nature of its influence in any particular case should be carefully estimated to secure the most satisfactory prophylaxis or cure. The fact that the disease occurs so much more frequently in bottle-fed children points strongly towards the *principal* effect of the heat being in its influence on the food; although the fair reply may be made to this that the artificially-fed class are constantly

exposed to the irritation from the presence of imperfectly digested or irritant matters, and that the depressing influence alone of the heat is enough to allow this constantly present cause to take effect.

Again if it is simply a fermentative change in the food, one would expect a *single* hot day to be followed by an increase in the mortality, which is not necessarily the case.

I have not been able as yet to formulate any law as to the relation borne between the *daily* temperature and daily mortality, other than that which we already know, that it requires a high temperature, say 65° to 70° F., for a certain length of time, to produce its effect. I have studied by the graphic method, the relations between the daily mortality and the daily mean of the air temperature, the barometer, and the humidity, but have not been able to demonstrate any stable relations between them to the mortality; although a rising temperature with a falling barometer often appear in conjunction with an increased mortality.

The date of *inception* of the attack in a large number of cases is necessary in order to make any deductions of much value. I have not thought it worth while therefore to at present reproduce these studies.

B. Urban Residence.—A second condition which meets with general acceptance as a necessary factor is the density of population, which as a rule is only found in cities and large towns. The following quotations from authors illustrate the views which are at present held, so far as I know, by all writers on the subject, whether English, Continental, or American.

Dr. Eustace Smith, in his *Practical Treatise on the Diseases of Children*, makes the following statement as to the causation of choleraic diarrhea: "It is especially a complaint of warm weather, and summer heat must be looked upon as a powerful predisposing cause of the disease. Other agencies however must come in as exciting causes, for the affection is not common in country places, and indeed is rarely seen out of cities."

Meigs and Pepper in their book *Diseases of Children*, say "the most active causes of the disease are the heats of summer, residence in large cities, and this includes higher heat than residence in rural districts, with greater density of population and more copious filth emanations and improper alimentation."

Dr. J. Lewis Smith in *Diseases of Infancy and Childhood*, says that "cholera infantum or, as it is sometimes called, choleriform diarrhea, is a disease of the summer months, and with exceptional cases, of the cities."

Dr. Louis Starr states in regard to its etiology that "like entero-colitis it is a disease of cities, finding its victims chiefly among those that live in poverty and squalor."

It seems as if there could be no question as to these views being correct, and yet in studying the occurrence of the disease in Massachusetts, from the mortality reports during the five years from 1880 to 1884, certain apparent facts present themselves which it is difficult to reconcile with the ordinarily accepted opinions.

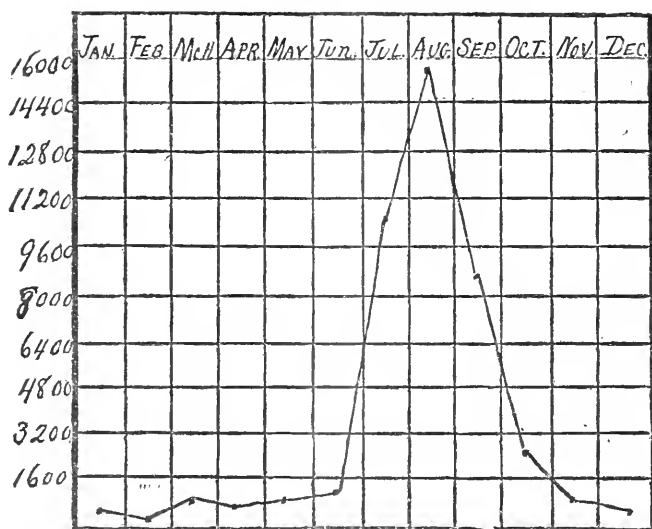
A few preliminary words are necessary as to these statistics. They are taken from the State Registration Reports, and are deficient in many respects. I have only been able to group the deaths from cholera infantum, instead of studying the deaths under one year from all the diarrheal diseases; because this latter is nowhere accessible. I have assumed that a death registered from cholera infantum must at least be a death from a diarrheal disease in an infant. To just the extent that this assumption is not correct, the conclusions are invalidated; but it seems to me it must be in only exceptional cases, that a death from cholera infantum does *not* mean a death from a diarrheal disease, and this exception again may occur equally in city and country.

That cholera infantum in Massachusetts is practically the same disease that we have under consideration, is shown by Table B. which gives the curve by months of the mean state mortality for twenty-two years. It presumably follows the same curve in the city and country,

although the registration report does not give the data for constructing a graphic curve which will verify this.

TABLE B.

DEATHS FROM CHOLERA INFANTUM IN EACH MONTH FOR TWENTY-TWO YEARS, 1863 TO 1884, IN MASSACHUSETTS.



January,	161	July,	10,745
February,	139	August,	15,908
March,	198	September,	8,364
April,	197	October,	2,411
May,	290	November,	453
June,	945	December,	195
			<hr/>
			Total, 40,006

It must be borne in mind that mortality statistics are not infallible guides as to the relative occurrence of a disease; and it is, I think, a fair assumption that a relatively greater number of children would survive an attack of summer diarrhea in the country than in the city, so that the same number of deaths—on the chances—in an equally populous city or country district, would represent a larger number of cases of the disease in the latter.

It is certainly a matter of absolute knowledge that in hundreds and hundreds of cases a change from a city to

a country residence—even if but temporary—is enough to effect a cure. It must not be forgotten, however, that in the great majority of these cases there is a simultaneous change of food.

Still another point must be recognized; that we may have all, or nearly all of the most vicious conditions of city life in a single tenement house in some mill town of perhaps only a thousand inhabitants; we may have, that is, the heat, the dirt, the overcrowding, the bad drainage, and the artificial feeding, which are the concomitants of city life; and such conditions may occur over and over again in the state.

Statistics are invaluable, but almost anything can be proved by them, unless they are thorough and thoroughly studied, and I do not think these I am about to quote anything but suggestive. To appreciate the true bearing of such statistics as are given in the registration reports, provided, in the first place, they had been carefully collected and verified, one must know:—

1st. To what extent the *other* admitted causes than urban residence prevail in one or another part of the state; as for instance, artificial feeding, which the social condition of the inhabitants may make more common in one town than in another: the local air temperature, etc.

2d. The relation of the population to the geographical area: *i.e.*, the number of inhabitants per square mile; and moreover if within any one square mile there are any one or more centres where many of the evils of the overcrowding of the city exist; and if so, what proportion of deaths occur in these centres.

3d. The relative mortality from the disease in one and another section, *i.e.*, the relative *occurrence* of the disease, for granted a common cause or set of exciting causes, their action may be entirely separate from those which induce a high mortality. We can easily imagine a larger number of cases with less deaths, in one of two localities; for instance, scarlet fever may result from a common cause, and affect an equal number of children in two families. The previous health, the hygiene, the social

condition, the nursing, and the treatment affect the mortality in the two families, though the cause was common.

To return, however, to the statistics of the mortality in Massachusetts, I find on studying the number of cases occurring in every town in the state, during the five years from 1880 to 1884, such apparently contradictory facts, that without a more definite knowledge of the *exact* cause of death, and of the differing conditions prevailing in the different towns, it does not seem safe to draw any deductions from the statistics. In many of the smaller and even in the smallest towns the number of cases of cholera infantum bears a higher percentage to the population, to the births, or to the total deaths under one, than in Boston. For instance, in Nantucket in 1884 (the population being that of the census of 1880), as compared with Boston, the following deaths occurred.

POPULATION, CENSUS OF 1880.	DEATHS FROM CHOLERA INFANTUM	DEATHS UNDER ONE YEAR.	BIRTHS	PER CENT. OF DEATHS FROM CHOLERA INFANTUM TO 1000 POP'L'TION	PER CENT. OF CHOLERA INFANTUM TO DEATHS UNDER ONE.	PER CENT. OF CHOLERA INFANTUM TO BIRTHS.
Nantucket 3727	8	20	57	2.14	40.	14.03
Boston 362,839	504	2288	11,372	1.66	22.09	4.41

This striking difference occurs in many towns throughout the state, while again in 1884 we find eight towns of a population of over 3000 without a single death registered from cholera infantum.

I will only call attention to one table which seems of some value. The figures of population are those of 1880, which brings in an element of inaccuracy. I have compared the deaths from cholera infantum with the population; with the births; and with the total deaths under one year in the three following groups.

- (1) 17 cities with population of over 15,000, a total population of 892,077
- (2) The towns of 15,000 to 5000 population " " " 331,644
- (3) The towns under 5000 (country districts) " " " 559,364

ANNUAL AVERAGE FOR THE FIVE YEARS 1880-1884.

	Population, Census of 1880.	Deaths from Cholera Infan- tum.	Deaths Under One Year.	Births.	Per Cent. of Deaths from Cholera Infantum to 1000 of Popu- lation.	Per Cent of Cholera Infantum to Deaths Under One.	Per Cent. of Cholera Infantum, to Births.	All Deaths Under One to Births.
17 Cities	892,077	1320	4816	26,479	0.14	27.4	5.3	18.1
Rest of States	891,088	712	2639	19,723	0.08	26.9	3.6	13.9
Towns of 15,000 to 5000	331,644	307	1167	8,757	0.09	26.3	3.5	13.3
Towns under 5000 (country districts)	559,364	404	1472	10,965	0.07	27.4	3.6	13.4

In this table several rather striking figures meet the eye. It is seen that in the percentage of cholera infantum deaths to population, the country has only one-half that of the city, but the per cent. of births in the city is higher, being 29.6 in 1000 against 19.6 in the country districts; so there are more infants in the 1000 to die. In the per cent. of cholera infantum deaths to total deaths *under one year* they are identical, 27.4. In the per cent. of cholera infantum deaths to births, the country shows the best, but even here not quite as well as the towns of 5000 to 15,000 population. In the per cent. of all deaths under one to births, the cities show the worst; but the towns of 5000 to 15,000 and all those under 5000, show a very slight difference, and that *against* the country.

These figures, therefore, as far as they go, show that while the prevalent opinion is correct, that the city is less healthy for babies than the country (for some reason); inasmuch as 18.1 of those born die under one year in the city, against 13.4 in the country; and as, moreover, 5.4 infants under one year die in 1000 of the population against 2.4 in the country—more than twice as many.

They do not verify the ordinarily accepted opinions as to the relative frequency of cholera infantum, in the two districts compared, as a cause of death in infancy.

In the towns of 5000 to 15,000, in every comparison the country is at a disadvantage, except in the percentage of deaths of cholera infantum to population, 0.9 and 0.7 respectively; the births to population are higher, 26 to 19.6, so there are relatively to the population more babies to die of any given cause in 1000 living persons in the towns than in the country.

How far these apparent facts will be corroborated by the further study I hope to make, is uncertain, they are offered for what value, if any, they possess.

C. The third cause. Artificial Feeding.

There is a consensus of opinion as to this being one of the necessary factors in the great majority of cases. It is not easy to get exact statistics, indeed I know of none

published in this country, which show the feeding statistics of infants dying from summer diarrhea.

In Berlin, Baginsky found, in the four years from 1879 to 1882, in the children dying from diarrheal diseases in the periods of January and February, and June and July respectively, the following figures, being the average of the four years.

JAN. AND FEB.		JUNE AND JULY.	
<i>Breast Fed.</i>	<i>Artificially Fed.</i>	<i>Breast Fed.</i>	<i>Artificially Fed.</i>
19.7	277.	69.5	1479.7

At the West End Dispensary and Infant's Hospital, in Boston, during the last two years, I have treated 224 cases of diarrhea in infants under one year; in 24 cases the disease was a second attack. Of the 200 infants only 33 were breast fed, or 16.5 per cent.; of this 33 again: in 16 the attack was probably due to the alteration of the mother's milk, produced by menstruation, and in ten the diarrhea was a complication of rachitis, pertussis, or bronchitis; leaving only 17 uncomplicated cases out of the 200 who had no artificial food and *good* breast milk. A close inquiry would much diminish this number, as mothers in the poorer classes do not consider it necessary to mention "a taste out of the hand," or "a drop of tea." In tabular form.

Number of Cases where History Known.	Number of Cases Over 10 Dejections in 24 Hours (Severe Cases).	Per Cent. of Severe Cases.	Number of Deaths.	Per Cent. of Deaths.
Breast 36	6	16	none	—
Mixed 98	31	31	4	4.0
Artificial . . . 69	22	31	6	8.7

If it were *realized* that yearly that Herodian instrument, the bottle, slew not only its thousands but its *tens* of thousands, I cannot believe that its abuse, which, in nine cases out of ten, is its *use*, would be so lightly con-

sidered in any community. Millions of these death-traps are yearly poured into the market, inviting seductively the mother to the case, which ignorantly she knows not is more deadly than the "quieting medicine" she later procures from the same source. A bottle with a long tube, and a supply of one of the numerous "perfect substitutes" for mother's milk, which are everywhere obtruded on public notice; and the city baby, who does not go "out of town" when "every body" goes, stands a good chance of going "out of town" and under ground in one and the same trip.

This language may seem extreme, let him who deems it so visit the tenement houses of a large city, or treat, at an out-patient clinic, sick babies during the heat of a city summer, and I venture to think his opinion would be modified.

TREATMENT.

1. Preventive.

2. Curative.

Recognizing as we must the practical impossibility of modifying climatic and social conditions to such an extent as to negative—to any considerable degree—the influences of heat and urban residence (so far as the latter prevails as a factor), the third cause, artificial feeding, remains; and this seems to me the most possible of modification in its ill effects.

A great deal can be done, and a good deal has been done to modify the effects of the two first-named conditions. Witness the fresh air spaces, marine parks, sea-shore homes, and open air excursions; the education of the masses in the matter of the personal hygiene of the infant during the summer, by personal and public instruction, etc. The awakened interest in every land in the vexing problem of social science, which relates to the condition of the poor, their housing, their education, and how they can best be helped, must ultimately lead to results which will improve the physical condition of the infants of the poor. But after all and in spite of all I fear the city must remain with its wheels of progress yearly crushing

out, like those of the car of Juggernaut, myriads of infant lives. The heat of city life, as a fire, sucks in from all its surroundings that nomadic element which is the most degraded and least stable, and offers the least resistance to its draught. We may lift up and educate the poor and improve their physical and moral condition, and by our very acts we help to make room for others to fill their places from below. It has been said, and I doubt not with truth, that it is impossible to find a healthy child, whose ancestors for two generations have been born and lived continuously in London.

Many philanthropists who favor the erection of the large so-called model tenement houses, do not recognize, it seems to me, the inevitable increase of mortality among infants, which comes from the aggregation of people in large numbers, however thorough may be the sanitary arrangements, as compared, that is, with small and isolated tenements or houses. I believe that this is one reason why in Philadelphia, the second largest American city, but where the tenement house system is practically unknown, the difference in infant mortality is so striking. In 1878, out of 60 American cities, Philadelphia had the lowest per cent. of deaths under five years to aggregate deaths, it being 17.97, Brooklyn 47.80, New York 45.95, Boston 39.16.

But the world moves, and there is forming a nucleus of public opinion which will, in time, enable our sanitary authorities to do what they stand waiting to do—wipe out the human rookeries that stud every city, and give to the infant that chance of life and health which a modern civilization demands for it but does not give to it.

In regard to the third cause, artificial feeding, a great deal could be done if its importance as a factor were more fully recognized, or less easily forgotten. It seems to me a grave responsibility for any one to take to advise weaning in the case of a child, who must, as an alternative, be bottle fed during the summer in the city or, although to a less extent, in the country. Yet not once but many times have I known of women who, at an out-patient

clinic or in private practice, have been advised to wean their babies; women without constitutional disease or taint, but simply "run down;" and I have seen the secondary sickness or death of their babes ensue. It is a matter upon which many mothers do not seek medical advice. It has often seemed to me, looking at it from the child's side, that we do not recognize sufficiently its right to a careful consideration of *its* interests in deciding the matter.

A baby in a well-to-do family with good hygienic surroundings can be bottle-fed with apparently little danger, though it is not a question even here to be lightly decided; but certainly a poor baby has as good a right to its life as a rich one, and in giving an opinion, even if a free one, it should not be lightly uttered or without a full recollection of its possible import. Even if but a little breast milk can be given by the mother it is infinitely better to furnish additional food for nourishment, for in time of danger breast milk, however poor, is a sheet anchor of dietetic treatment, except in those rare cases where it is found difficult of digestion. But this method involves more trouble to the mother, than complete weaning, and is hence comparatively seldom followed.

The social condition of the poorer classes of course determines largely the question of artificial feeding, but still if as many children died of small-pox in a year as of diarrhea in the three summer months, I believe *some* means would be found to secure vaccination, even if it were as expensive as good breast milk; and a society to help them secure its benefits would be amply supported. But small-pox is contagious and threatens the *public* health. I do not believe that one is a *much* surer protection against small-pox than the other is against cholera infantum; nor is the first any more fatal a disease, or more serious in the injury inflicted on the system in case of recovery than the latter.

Where artificial feeding is resorted to, as it must be in many instances, there is here a great opportunity for

preventive measures, public and private, but space is too short to admit of their discussion here. The inspection of the milk supply; the production of a milk suitable for infant feeding, constant in a composition which is definitely known to mother and physician; a milk which is brought to the consumer *fresh*, not thirty-six to forty-eight hours old (and this is entirely feasible); the supervision of infant boarding; the education of the mother in the necessary knowledge of principles, of which the first is absolute cleanliness; these are some of the ways in which prevention can be secured.

A more thorough appreciation of the necessary *details* of infant feeding; the power of observation which enables each child to be individualized and its individual necessities met, would aid still more: and it is in these latter ways that I believe the profession can greatly reduce the existing mortality from, and the frequent occurrence of summer diarrhea.

It takes time and patience to convince a stupid uneducated woman of the importance of these facts, but she does not *want* her child to die, and once convinced, she will stay so, long enough at least to improve materially her child's chance for life and health.

2. CURATIVE TREATMENT.

The disease is not strictly a self limited one, but in infancy the reparative power of Nature is so great, that in the vast majority of cases, when the causes cease to exist or to exert their influences, recovery speedily ensues if the stage of collapse has not already been reached; and the earlier in the course of disease that this action, and the results of these causes are annulled or modified, the more satisfactory will be the results of the treatment.

How can we modify these causes and their results? To answer this most important question, let us analyze the several results of the different causes.

The following analysis is not presented as being capable of physiological or pathological demonstration in every instance, but as an exposition of the symptoms present, singly or in combination, with a reference to the probable or possible cause; and as illustrating the most important points for therapeutic attack.

FIRST CAUSE.

HEAT= THERMIC FEVER.

Cardiac weakness=circulatory disturbances.	{ <i>e.g.</i> , Pulmonary congestion. Secretory disturbances. Cardiac failure. Collapse; death.
Irritability of nervous system.	
1st stage, over action (excitation).	{ Lack of control of heat regulating centres. Lack of control of vaso-motor system (sympathetic).
2d stage, paresis† (depression).	
	{ Serous diarrhoea, great loss of fluid from vomiting and diarrhoea, resulting rapidly in inspissation of blood, embarrassing cardiac action and nutritive activity, with imperfect emunction, great and sudden loss of weight; impairment of vital force. Increased reflex activity; in conjunction with the above result, opens the way for irritative fever from presence of irritant matters in digestive tract.
Increased metabolism of tissue, wasting and loss of vital force, with probably imperfect emunction, and possibly auto-inoculation with resultant products of imperfect oxidation.	
Diminished digestive power: renders more probable reduced nutrition, and occurrence of imperfectly digested matters which may act as local irritants.	

SECOND CAUSE.

URBAN RESIDENCE. (?) Increase of heat and hence increased activity of first cause.
Bad hygienic surroundings.

Vitiated air	{ Poor in oxygen. Rich in micro-organisms (specific germs?).
	Depressant gaseous or particulate matter: e.g., human exhalations, sewer gas, smoke, etc.
	Depressing vital force, furnishing ferments for putrefactive and fermentative changes in food, if artificial food used.
Lack of air.	
	Poor food supply; old and adulterated milk, increasing effect of third cause.

THIRD CAUSE.

ARTIFICIAL FEEDING.	Impaired nutrition (increased by lack of good food supply); diminished resistance to other exciting causes.
	Fermentative (acid) and putrefactive changes.
	Local irritation of gastro-intestinal tract. A catarrhal condition; impaired digestion or absorption; diarrhea; inflammatory changes; fever, diarrhea, loss of water, impaired nutrition, etc., as before mentioned, reflex action increased.
	Absorption of toxic chemical substances; poisonous and depressant effect on nervous system.
	Effect of pathogenic micro-organisms (?)
	Chemical Composition.
	Difficult digestion, mechanical irritation of intestines, and formation of "by-products" acting as local irritants; or depressants if absorbed.
	Disordered digestion and nutrition, a catarrhal or inflammatory condition with results as before mentioned.

Any one or a group of these conditions spoken of in the above may of course exist being due to some other cause or causes; a child who is suffering from a slight catarrhal intestinal trouble, the result possibly of a cold, is just so much the more susceptible to the other causes; a child with a weak circulation is again more exposed than a similarly situated child without such defect.

The treatment then is to be governed on the general principles of therapeutics, which can be determined by analyzing the symptoms present.

These children die not of the local conditions but of collapse, heart failure, nervous prostration, or later of malnutrition which ends in heart failure. If we can prevent the occurrence of these conditions, infants will not die as they now do by the hundreds and thousands.

Fever; cerebral irritability, or exhaustion; the rapid loss of fluids; cardiac weakness; innutrition or denutrition, rapid or slow; the local irritation or inflammation where it exists, are the enemies to be conquered. There is nothing more startling, more sudden in its onset, and more necessitating rapid skillful treatment, than the combination of these conditions sometimes met with; a disease which almost justifies the name it bears, cholera infantum.

Medicine directed to the more evident local manifestations of the disease is comparatively unimportant and

unnecessary in the light cases; and if used alone, time wasted in the severe ones.

Fever, the arch enemy of the infant's organism, I believe to be the most dangerous symptom when present to any considerable degree. The fever may be primary or secondary; in the first class of cases it seems to be more frequently of purely nervous origin, the intestinal symptoms, often choleraic in type, appearing simultaneously or shortly after, and being probably purely nervous in their origin. In the second class of cases, as a rule slower in their progression, the symptoms can be traced back to a simple dyspeptic catarrh, which has gone on to an inflammatory affection, either enteritis, gastro-enteritis, or entero-colitis. The fever gradually increasing, with finally, as a rule, a sudden increase and a sudden exacerbation in the severity of the attack. It is important to determine to how great an extent local inflammation of the intestinal tract exists, by careful inquiry and inspection of the discharges, as a guide to local treatment.

For treating the fever, I do not believe there is any method so safe, so sure, so scientific, or so speedy as abstraction by water. This remedy is always at hand, its action is under perfect control, and can be stopped or modified at any moment. It relieves the irritability of the nervous system; it supplies through the skin the water that has been lost from the intestines, and thus relieves the heart. It causes derivation to the skin, which can be intensified by the addition of rubefacients; this again relieves the heart and internal organs by restoring the equilibrium of the circulation. It spares the stomach and intestines from the additional irritation of an antipyretic drug. Antipyrine hypodermically or by the mouth may prove its equal; it is certainly the best substitute we have at present.

I have seldom found it necessary to use the bath. The infant being stripped and laid upon a blanket, is packed in a sheet wrung out in water at a temperature of, say 95° F., and every five minutes an alternate sheet wet in

water which is gradually cooled is substituted. As a rule, in half an hour, with a reduction of the water to only 70° F., a fall of from 3.5° to 5° F. or more has taken place; it may be necessary to lower the water to 60° F., seldom lower. The reduction is not as permanent as with antipyrine, and the process needs frequent repetition. During the heated term in the city, I have sometimes kept infants in the pack for days with most satisfactory results. I recall one case of particular severity where a baby, with a temperature of 108° F. and severe vomiting and diarrhea, wrapped only in a sheet was sprinkled from a watering-pot every hour, day and night, for several days; whenever this was omitted he became restless and irritable, the temperature immediately went up, and the vomiting and diarrhea returned. He was kept in the pack for a number of days and made a perfect recovery.

Even where the fever is not marked, great relief often follows from this method to the nervous irritability and the distressing thirst, which often not even a teaspoonful of water can be retained to alleviate. Even if shortly vomited, however, the continued administration of water to supply that lost from the intestines until the diarrhea is checked is of the utmost importance.

There is always in the earlier stages considerable irritability of the nervous system which it is important to control, and theoretically opium is the most suitable agent. Opium has been made the bug-bear of the children's doctor. There is no doubt that it is a drug which must be used with caution, but it is a most valuable one if so used.

In the *early stages, or before an approach to the state of collapse*, opium is a most important adjunct to treatment. The bromides will often take its place, but their action is slower and possibly in the end more depressant. I believe however that opium should be given for its general effect and not for local or "astringent" effect, if it has any such.

We need not fear the added responsibility of making habitués of our patients at this early age.

The heart is the point on which attention should be fixed, and by its condition should the question of

stimulation be decided. Too early or too abundant stimulation is worse in a baby than in an adult, for the heart is more sensitive and more easily over driven. But for that same reason stimulation is absolutely essential in the severe and rapidly prostrating cases of this disease. The study of the pulse and auscultation of the heart are necessary to an intelligent judgment as to the time and amount of use of alcohol and of digitalis and other cardiac tonics and stimulants. Digitalis is a drug which, if employed rationally, is of great value not only in this, but in all diseases of infancy accompanied by a cardiac weakness.

There is nothing more *irrational*, and probably often disastrous, than *routine stimulation* in infants, and yet I fear stimulants are often used in this way.

Nutrition must be kept up, if possible, on account of its influence on the general condition. The question of dietetics therefore must be considered from this standpoint as well as from that of local treatment of the intestinal tract. The principles of dietetic treatment are simple and rational and yet are frequently ignored or forgotten.

The food may be the initial irritant, either from changes which may have occurred in it previous to ingestion, as acid fermentation or putrefactive change, or subsequent to ingestion, as farther fermentation, incomplete digestion, etc.

The substances resulting from or accompanying these changes, may act mechanically or chemically as irritants, causing hyperemia and a catarrhal condition; the acid fermentation of the mucus,—which is secreted in an abnormal amount as a result of this irritation and readily undergoes fermentation—intensifies the acid condition of the intestine resulting from the food fermentation; this acid condition causes farther local irritation of the intestine, and may also act as a reflex irritant on the terminal nerves of the intestinal surface. The indications are just as strong to put the irritated or wounded surface at rest, as in case of fracture of a bone; and

the continued administration of food requiring for its digestion or absorption the functional activity of the parts affected, is as irrational as would the rubbing together of the ends of a freshly fractured femur.

To just what extent it is necessary to limit the quantity and quality of the ingesta is a matter for decision in the individual case, but the principles of dietetic treatment remain the same, whether in a slight case of dyspeptic catarrh we merely limit the amount, or in a severe case of entero-colitis we withhold all food requiring any digestive activity on the part of the intestinal tract.

Believing, as I do most strongly, that the fermentative changes in the milk,—which is a fluid undergoing such changes with the greatest rapidity,—is the most important etiological factor, the first step is to withhold it entirely for a longer or shorter period. The nutrition will not in acute cases in previously fairly nourished children suffer sufficiently to overbalance the great benefit derived from such abstention. This is often the only treatment necessary or desirable in the slighter cases of diarrheal diseases in infants, together with a cathartic of castor oil or rhubarb and soda or calomel to clear the bowels of offending matters, and the administration of an alkali to neutralize the acidity of the intestines.

If it is necessary to resume or continue the administration of food, such preparations should be selected as can be absorbed without farther digestion or very readily undergo it. The success of many patented nostrums depends simply on this, that simultaneously with their use milk is dropped from the dietary. Sugar, the most important element in infantile nutrition, can be given in simple solution. Albuminoids, as white of eggs in solution in water, or fresh beef juice, or the two may be combined. Barley water, a very easily digested and absorbed starch, may again furnish the necessary sugar, or we may employ one or another of the different malted foods which are practically sugar, and a very good kind too, *i. e.*, one that does not easily ferment. Fat can be dispensed with for a considerable time if necessary, or may be given by

inunction, or later in almost infinitesimal doses of some *sweet* emulsion of cod liver oil.

The child's peculiarities must be studied. Routine dietetic treatment is unsatisfactory.

All changes to the more nutritious and ordinary forms of diet, especially those containing cow's milk, should be made gradually, avoiding a sudden change of either quantity or quality; oftentimes ten drops of milk is as much as it is wise to give in a meal of an infant recovering from a diarrheal disease. My time is too short, however, to attempt any description of details which are undoubtedly familiar to all, but the importance of which has seemed to me not always to be fully recognized, an attention to which would result in a very perceptible diminution of the mortality from "summer diarrhea."

The use of the alkali is an important point in the treatment of all cases characterized by an acid condition of the intestinal tract. An alkali may be given for three purposes, and should be administered differently according to the effect desired.

1. To stimulate the secretion of the gastric juice.

2. To render the coagulation of the albuminoids of cow's milk less dense, and thus make the digestion easier.

3. To neutralize the acidity of the intestinal tract.

It is often given for this latter purpose, and it should be remembered that, when this object is attained its farther administration is needless and may be harmful. Alkalies are given freely to children and taken by adults without professional advice: witness the enormous consumption of "soda mints."

In children alkalies are not harmless: Jacobi has uttered a timely warning in regard to their too liberal administration.

The character of the dejecta should be watched to determine the necessity of administration of an alkali. In the choleraic type of the disease, we often have an alkaline condition of the alvine discharges: probably as a result of functional nervous disturbances. An abnor-

mally alkaline condition then is an indication for the use of an acid, or the cessation of administration of an alkali.

The choice of the alkali to be used is a matter to which considerable importance is attached. Personally I prefer the soda salts, believing them to be less depressant than the potash. Where there are gastric symptoms the benzoate has seemed to me to have a better effect, especially on the vomiting. If there is evident irritability of the nervous system the bromide of soda is often advantageous. For the ordinary case salicylate of soda seems to me better, as being probably possessed of some anti-fermentative power. It will be found that most of the drugs depended on in the treatment of this disease, as bismuth, oxide of zinc, creosote, or carbolic acid, calomel, resorcin, etc., have a decided anti-fermentative action; and this may be the explanation of their undoubted value. *Antisepsis of the gastro-intestinal tract is an initial and necessary adjunct to treatment.*

TO SUMMARIZE.

It is to be remembered that the alimentary canal is outside the body, and if irritated or inflamed is to be treated so far as possible on the same principles as an open wound.

Quiet it by rest; first, through its relations to the system at large, if other conditions render it proper, by opium, bromide, or other sedatives, avoiding a depressant effect.

By rest; second, locally, through dietetic treatment; and local treatment, if possible and necessary, to restore it to its normal alkaline condition, and to soothe an irritated or inflamed condition if present. Antisepsis of the gastro-intestinal tract,—so far as possible,—to prevent the presence of chemically irritant matters, or absorption of morbid agents. If such matters or agents are present, their removal by suitable means.

Treat the general condition; recognizing the *physiological* cardiac weakness in infancy and making its sup-

port and a stability of action of the nervous system the ends to be attained. In case of a serious loss of fluids from the system, this must in *some* way be replaced. It is easy to cure the disease, if you can keep the infant alive while you are doing it.

I have made no attempt to mention any one drug or combination of drugs, or to offer any routine prescriptions, believing that in this, as in all diseases where no known specifics exist for their remedy, that physician succeeds best who recognizes the *principles* of treatment, and uses the necessary drugs with whose action he is most familiar and can hence use most intelligently.

Routine prescription and treatment, especially the dietetic part of it, has seemed to me even more common in treating these diarrheal diseases of infants and children than in any other class of diseases.

One often sees a baby dosed with astringents, stimulants, cardiac tonics, and supposed specifics or favorite "diarrhea mixtures," while the diet of the child is either not interfered with or only altered by the addition of a little lime water to the original, and still potent cause of the disturbance. Milk fermented or putrified as a result of thirty-six hours exposure to the heat of a city summer.

No attempt is often made to localize the intestinal disease from a systematic study of the symptoms and discharges; or to differentiate between the symptoms caused by a local irritation of the intestine and a force acting through the nervous mechanism, and perhaps utterly unconnected with any local disturbance.

To treat the latter with measures adapted to the former will often yield only disappointment and possibly regret.

A moments reflection will, I am sure, convince anyone that such a course is not only unscientific but dangerous, and that the frequent occurrence and enormous mortality from this disease, a very scourge of unprotected infancy, demands and merits the most conscientious and strenuous efforts on the part of every physician for their reduction.

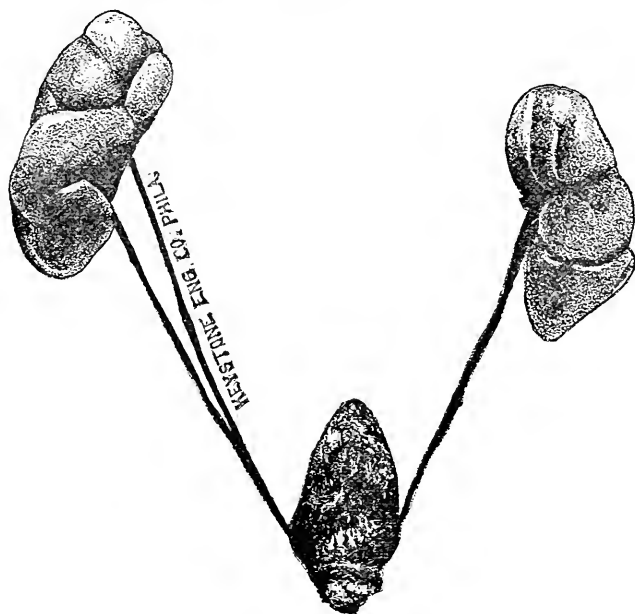
TWO CASES OF ANOMALOUS URETERS.

BY DR. S. AUSTIN DAVIS,

Late Resident Physician New York Infant Asylum, Mt. Vernon.

The accompanying drawings show some interesting malformations of ureters, coming to my notice while Resident Physician of the New York Infant Asylum. Specimen A was removed from body of male child who

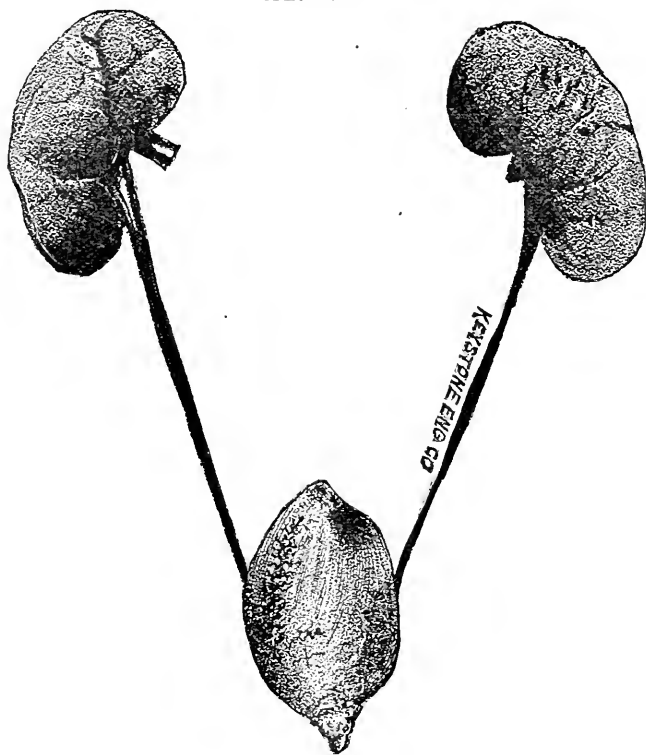
SPECIMEN A.



died of acute entero-colitis at fifteen and one-half months. The right kidney possesses two ureters, each originating in a separate pelvis and uniting in a single tube about one and one-half inch from bladder. (Fig. 1.)

Specimen B was removed from the body of male infant, aged five and one-half months, dying of acute enterocolitis. Ureter from left kidney begins as a funnel-shaped dilation from a normally formed pelvis.

SPECIMEN B.

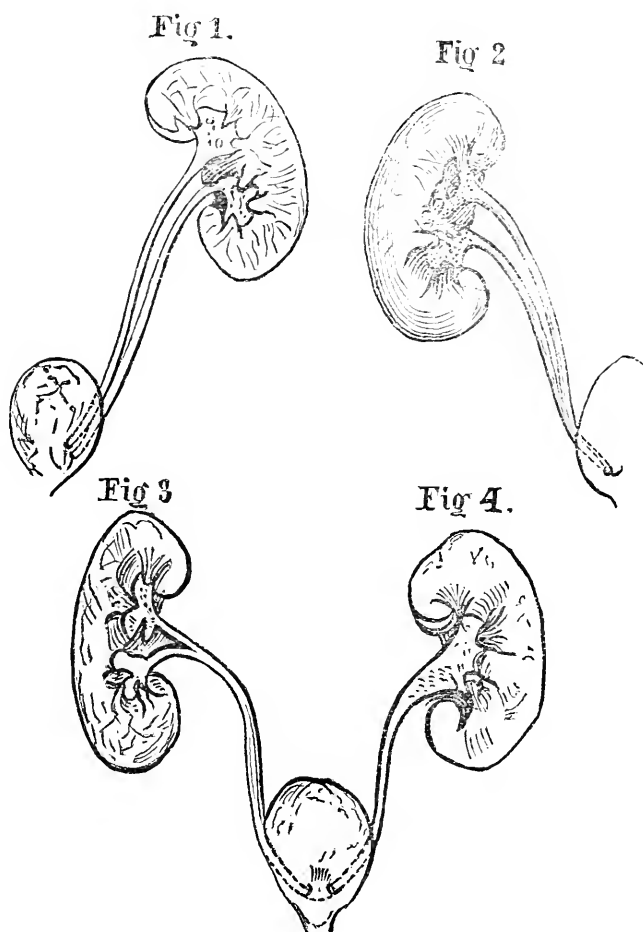


Right kidney possesses two distinct and separate pelves from each of which originates a ureter, both uniting about three-fourths of an inch from origin to form a single tube which takes a normal course to bladder.

It is suggested by an examination of the pelvis and ureter in each case, as roughly represented by the diagrams marked 1, 2, 3, 4, that in the early history of the kidney and ureter there may be two distinct organs on each side, which finally fuse into the form styled normal.

In Fig. 1 there are two distinct and patulous tubes,

each from a distinct pelvis, and each opening separately in the bladder. By the simple process of union of tubes



and gradual obliteration of septum, beginning at bladder, the product will be Fig. 2. Continuing this process the form shown in Fig. 3 is reached, and finally the dilated but single ureter and single pelvis, Fig. 4.

SALICYLATE OF SODA IN THE TREATMENT OF
INFANTILE DIARRHEA.

BY A. SHANK, M.D., CLEAR SPRING, MD.

By the term diarrhea, we mean an unusual increase in the number of the alvine dejections. It is not a disease, really, but only a symptom of disorder in the digestive organs. For the sake of brevity, we will consider under the general term, the non-inflammatory and the inflammatory form of the disease. It is of the former principally that we wish to speak, paying special attention to the cause.

The attacks very generally come on suddenly. The child being in its usual health during the day, awakens in the night with severe pain in the stomach, vomiting, and frequent discharges from the bowels. The cause of the attack has ordinarily been attributed to improper food. A recent writer on the subject says: Undoubtedly¹ the most common cause of infantile diarrhea is improper feeding, either in point of quality, quantity, or frequency. In fact nearly all authors agree in ascribing the cause to some error in the diet. That careless feeding is often the cause of an attack all who have observed the disease will acknowledge. But how often do we notice, that two or three days of unusually warm weather are followed by a number of cases of gastro-intestinal disturbance. What has been the real cause? Have mothers and nurses all of a sudden become so indifferent in regard to the diet of the children under their care? Has improper food acting as an irritant produced all these attacks? A careful inquiry will in all probability fail to detect any departure from the daily routine in their nourishment. Yet the attack has come on and not without a cause, Examine the alvine discharges carefully and they will be found to be acid, extremely offensive, and full of curds

¹ Reference Handbook of the Medical Sciences, volume second, page 437.

of milk. What has taken place? Evidently the high temperature has caused a fermentation of the contents of the stomach, instead of a healthy digestion, and the product of the fermentation, acting as a foreign substance, has so irritated the digestive track, as to produce the diarrhea.

In accordance with this view, as to the cause of the attack, what would be the rational mode of treatment? Should we administer a laxative, according to time-honored teaching, and further irritate the already over sensitive mucous membrane? It is not necessary, in order to get rid of the offending matter, for nature is carrying it off as rapidly as it can. Many cases have been relieved by giving a dose of calomel, but not on account of its purgative action, as supposed by the prescriber, but rather through its property as a germicide. Would it not be better to administer an antizymotic, which will have a tendency to render the contents of the stomach and bowels innoxious and prevent further fermentation. For this purpose, we certainly have no better remedy than the salicylate of soda. In it we have both an antacid and an antiseptic of the first class, and what is a great consideration a medicine not disagreeable and that can be easily administered to a child. I usually begin by giving one grain every three hours to a child one year old. If there is much gastric irritation and vomiting, one-fourth to one-half grain of calomel should be added to each dose. To control the pain, if severe, combine with them a sufficient amount of powdered opium, and if the bowels are being moved very often subnitrate of bismuth, or prepared chalk, or both can be given with the other ingredients. Under this treatment, the vomiting will cease, the pains be relieved, and the number of actions on the bowels grow less; and what is of more importance than all, the offensive odor of the discharges entirely disappear, and with it all the unfavorable symptoms.

Should the attack be allowed to proceed unchecked, and the character of the alvine evacuations unchanged, an

entero-colitis must follow, and convert a simple diarrhea into a dangerous inflammatory disease, that may end in death. If through neglect or a failure to arrest the disease, we find ourselves confronted with a fully developed inflammatory attack. What shall be our course? If the discharges are offensive, no matter in what stage of the disease, give the salicylate of soda, subnitrate of bismuth, and calomel in small quantity continuously, and in the great majority of cases the treatment will be found to be successful. Carbolic acid combined with the chalk mixture has been highly recommended, but in the writer's experience has not proved so satisfactory as the treatment above described.

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Gibney, V. P. The Limitation of Therapeutics in Infantile Paralysis. (*N. Y. Med. Journ.*, April 3.)

I. What can be done for the relief of the paralysis? Galvanism, faradism, massage, iodide of potassium in moderately large doses, and counter-irritation to the spine are usually employed. Yet little reliance can be placed upon these agents to restore muscles when their nerve centres in the cord are dead. II. What can be done to prevent the sublaxations and deformities which arise from muscular and tendinous shortening? (1.) Avoid any undue stretching of the fibrous structures of the joint. (2.) Do not permit long-maintained positions of the parts by which the muscles whose function has not been destroyed can become shortened. (3.) Apply corrective apparatus when it is necessary to oppose contraction, however slight. (4.) It is better not to leave these observations to the family. III. How shall deformities resulting from muscular and tendinous shortening be corrected? Two methods are in vogue: (1.) Traction. (2.) Tenotomy or myotomy. Traction has been demonstrated to be sufficient to overcome any and all such shortening, whether of the nature of contraction or con-

tracture. Division of the adductors of the thigh or of the hamstrings, however, accomplishes more in a few minutes than one can accomplish by ordinary traction in as many months. IV. What remedies have we for elongated tendons and muscles? (1.) Apparatus so constructed that the parts at fault may be retained in a state of great relaxation, in the hope that inherent shortening will thereby take place. This, in the doctor's opinion, is a delusion, as apparatus is never continuously worn, be the physician ever so careful and positive in his instructions. (2.) Tendons are shortened by removal of a portion and by uniting the proximal and distal extremities. Even these operations were not attended with success until Mr. Alfred Willett resorted to a suturing of the tendon ends with the surrounding tissues. V. Synostosis as a substitute for apparatus. By obtaining bony ankylosis in the lower extremities, an increased use of the legs is obtained. Surgery, after all, offers the only relief in infantile paralysis.

Meigs, A. V. A Plea for the Necessity of a Common Standard for the Artificial Feeding of Infants. (*N. Y. Med. Jour.*, April 10.)

The food preferred by the doctor is as follows: There must be obtained packages of milk sugar containing $17\frac{3}{4}$ drachms each. The contents of one of these packages is to be dissolved in a pint of water, and, when the infant is to be fed, there must be mixed together two tablespoonsful of cream, one of milk, two of lime-water, and three of sugar water, and this, when warmed, is ready for use. The favorite food of the late Dr. J. Forsyth Meigs was the following: Of milk, cream, lime-water, and arrow-root water, two tablespoonsful each, with a little sugar added; the arrow-root water to be made one teaspoonful of arrow-root to a pint of water. Frequently the food of an infant may be as perfect as possible, if we look upon being of precisely the mean average composition of the food which nature supplies as perfection, and yet it fails utterly to properly nourish the infant, because his own individuality is so far a departure from the usual average, that what is good for others of his age and condition fails entirely for him. The next step in advance that we have to hope for, is the acceptance by teachers and practitioners of some general rule with regard to what constitutes a proper diet for infants, and then, still later, it is to be hoped that it shall be learned how to modify this

rule to meet the needs of individual cases. It is infinitely difficult to judge, in any case where artificial nourishment has to be resorted to, whether the failure is due to unsuitability of the food, or whether it is owing to faulty organization of the infant. Condensed milk, as it is usually diluted when used as a food for young infants, contains less than one per cent. of casein. In this fact is to be found the secret of its success; otherwise it is inferior to fresh cow's milk. There are but two possible means of improving our position with regard to artificial diet—the one by learning, from a theoretical standpoint, how we can better feed our infants, and the other by rigorously studying the recorded results of experience past and present, and from this arriving at some definite plan.

There can be no doubt or dispute of the fact that human milk contains all the ingredients necessary to the sustenance of the infant, and contains them in the proper relative proportions. If, then, we want a theory for our guidance, the only one available is to learn what is the precise composition of human milk, and then to imitate it for the benefit of those who cannot be nursed. The conclusion that human milk never contains more than about one per cent. of casein is to be emphasized. Casein and sugar are, for all practical purposes, the only constituents about which there is any difference of opinion. That cow's milk must be diluted one-half or two-thirds, whatever additions may afterward be made to the diluted milk, before it can be a fit food for new-born infants, has been the advice of the immense majority of clinical observers. It is strange to pass in review the evidence that comes from various sources that a food for young infants must not contain more than one per cent. of casein. The desired uniformity of teaching and practice may be arrived at by a general recognition of the fact that the amounts of the water, fat, and inorganic materials are already known, and that we have only to study the casein and sugar, and conclude upon their amounts, to place the subject upon a satisfactory basis.

Dessau: The Treatment of Diphtheria. (*N. Y. Med. Record*, June 19)

Constitutional treatment alone is employed by the doctor, with the exception of cases involving the larynx or nasal cavities. It has occurred to him that the elevated temperature at the onset of the disease was such a marked symptom that an antipyretic that would not weaken the

heart, while it would reduce the amount of blood pressure, especially in localized parts, might be of great assistance. Following out this idea, tincture of aconite was administered in doses of a drop or a fraction thereof, according to the patient's age, giving it every fifteen minutes for the first hour, and thereafter hourly. This tended speedily to reduce the temperature, so that in from twenty-four to forty-eight hours there was little or no fever present. Exudations whether upon mucous or serous surfaces, or whether due to local mechanical obstruction in the capillaries, or sudden changes in the condition of the blood, are the result of suddenly increased blood-pressure. The effect of antipyretics, like aconite and antipyrin, when given in proper doses, is to lessen or modify this tension in the bloodvessels, either in a limited area or in the circulation at large, without at all weakening the heart's action. In cases of diphtheria involving the pharynx or nasal cavities, at the onset of the attack, a dose of calomel is administered, say from three to five grains, combined with five or ten grains of bicarbonate of soda. This is given at the beginning of treatment, for the purpose of clearing out the intestinal tract and inducing an increased action of the hepatic function. Corrosive sublimate, in doses of one-fiftieth to a hundredth of a grain, repeated every hour, has been used in several well-marked cases of diphtheria with gratifying results. Through the stimulant action of corrosive sublimate upon the liver, it is reasonable to suppose that that organ may be made to assist largely in the elimination of diphtheritic virus through its destructive action upon the same. Good ventilation, alcoholic stimulants, milk, and beef extract, are all necessary. Cracked ice held in the mouth and allowed slowly to melt, proves grateful. The application used in the nasal cavities is a weak solution of baborate of soda with boracic acid, to which a small quantity of glycerine is added.

Treatment of Variola (Editorial). (*L'Union Méd. du Canada*, Nov.).

The author thinks there is too much disposition to consider this disease as not amenable to treatment, and to limit our attention to merely prophylactic measures. This is especially true with respect to the confluent and hemorrhagic varieties, and he would therefore call especial attention to recent communications with respect to these varieties. The first of these is by Saint-Philippe

and concerns the treatment of confluent variola. This author does not believe that treatment should be limited to tonics and stimulants, but that the use of salicylate of soda, begun in the first period of the disease will have a very favorable effect upon the pulse and the temperature, and will also act favorably by its sudorific properties. In sixty cases in which he used it, he found that the pulse and the temperature were thus favorably effected, that delirium was quickly subdued, sleep was obtained, and the appetite improved. The most noticeable effect to him, however, was seen in the diminution, arrest, abortion, and transformation of the pathological process in the skin. Suppuration in these cases was less extensive and less prolonged than is usually seen, and the desiccation of the pustules was decidedly hastened by applications of a ten per cent. lotion of the soda salt. The administration of the drug was commenced on the fourth to the sixth day of the disease, from one hundred and forty grains per day being given to an adult, and from seventy to one hundred to a child. Plenty of nourishment was insisted upon in all cases, from the very beginning of the disease. The second communication was by Nazarre in which he advises the use of terebenthine in hemorrhagic variola. His results were not absolutely conclusive, but it is stated that of those who were not *in extremis* when the treatment was begun, and could bear the medication, some recovered and others held out longer than under other means of treatment. That some good results were obtained disproves the axiom of Kaposi that the prognosis of hemorrhagic variola is absolutely fatal.

A. F. C.

Scofield: Subcutaneous Use of Morphine in Infantile Convulsions. (*N. Y. Med. Record*, May 29).

An infant, eighteen months of age was seized with convulsions lasting two hours. Emetics, hot baths, and mustard to the feet had no effect. The writer administered one-eighth grain of sulphate of morphine hypodermically, which was repeated at the end of twenty minutes—no effect having been produced by the first dose. This was also followed by no improvement, and a third injection was administered twenty minutes later. This was effectual in controlling the convulsions, and by the expiration of an hour from the time of administration of the first dose the child was sleeping quietly. When seen the following morning, the child had taken food as usual, and was apparently as well as ever.

Köröse: The Mortality among Children in Budapest during the Years 1876 to 1881. (*Arch. f. Kinderh.*, Bd. vii., H., 1.)

These statistics are important and valuable because, as Baginsky remarks, they may be taken as representative, to a decided degree, of the laws which seem to govern the mortality of the juvenile portion of the population in great cities. (It may be added that they are almost identical with the statistics which pertain to Berlin).

1. The mortality among the inhabitants of a place may be determined, to a great extent, by reference to the mortality among children.

2. This mortality is seen to be on the decline, with the improved hygienic conditions of the great cities.

3. A very large proportion of infants die in the first month of life, the danger to life becoming less and less imminent until the second year is passed, when the very dangerous period may be considered as over.

4. The summer season is the most trying one for infants, the autumn is the least trying.

5. As to religious beliefs, the Jewish children (in Budapest) show the greatest vitality; then in succession the Lutherans, Calvinists, and Catholics.

6. The mortality among illegitimate children is half as large again, during the first three months of life, as it is among the legitimate.

7. The better the condition in life of the parents the less the mortality among the children.

8. The mortality among children who are *farmed out* (i.e., boarded away from their homes or parents) is greater than among those who are cared for at home.

9. Children who are nourished from the bottle show a much greater rate of mortality than those who are nourished at the breast. The chief causes of death among the former are intestinal catarrh and pulmonary tuberculosis.

10. The child's chances for life are greatest when the father is between the ages of twenty-five and forty (at the time the child is begotten), and they grow less and less favorable after the father's fiftieth year has passed. As to the mother she is most likely to affect her offspring favorably, as far as physical conditions are concerned, between the ages of twenty and thirty-seven, though there is very little variation from this to the very limit of the child-bearing period.

11. Intestinal catarrh, pulmonary tuberculosis, pneumonia, convulsions, and congenital weaknesses are the

greatest enemies of early childhood. Diseases of the digestive organs, as well as fatal cases of congenital weakness, occur most frequently in summer. Brain diseases are most frequent in the spring. A. F. C.

Monti: Intestinal Irrigation and its Therapeutic Value in the Treatment of Intestinal Diseases in Children. (*Rev. Mens. des Mal. de l'Enf.*, [from *Arch. f. Kinderh.* vii. 3.] March, 1886).

In this extended article a number of valuable points in connection with this method of treating intestinal disease are brought forward. In performing irrigation the author has the patient placed upon the back, with the hips elevated and the thighs flexed. The end of the injection tube, well oiled, is passed into the bowel for a distance of four or five centimeters, and then the liquid is forced in slowly and without much force. If the child cries, the operation must be stopped for the moment. The liquid may be forced through the entire intestinal canal, for a pressure of twelve to thirteen centimeters will be sufficient to overcome the resistance of the illeo-cecal valve. The object of this treatment in dyspepsia is to dissipate meteorism, and to remove the matter which has collected in the folds of the intestine. These accumulations consist of undigested casein, half putrefied fatty matter, and of starchy substances which have undergone acid fermentation and are the cause of colic in many cases. The advantage of this form of treatment over medication by the stomach is that the course of digestion is not interfered with nor the gastric mucous membrane irritated. The results are most satisfactory when the entire large intestine is covered by the irrigating fluid. If the meteorism is very extensive, the injection may be repeated every two hours until relief is obtained. Either simple warm water may be used, or a small quantity of sea salt may be added.

Fecal Accumulations.—If the accumulation is large, a simple enema of water will often be insufficient to remove it. It will therefore be necessary to add castor oil, infusion of senna, or some other suitable purgative.

Habitual Constipation.—Two indications are to be fulfilled in cases of this condition, the fecal matter is to be removed and the atony of the intestine to be overcome. From one to three pints of water will be required, according to the age of the patient. If the condition is the result of contraction of the caliber of the intestine, whether this be congenital or acquired, a soft tube of small caliber should be used.

Follicular Enteritis.—The author thinks that this treatment is indicated in all conditions and degrees of this disease. If the disease is not very extensive and there is no fever, the temperature of the water should be only lukewarm, but if there is fever it should be as hot as can be comfortably borne. Astringents should be injected if the disease proves rebellious. Ten to twenty grams of tannin or five grams of subacetate of lead may be used to a quart of water. Chloride of lime, carbolic and salicylic acid, and resorcin do not appear to have any decided action in these cases. If the enteritis is chronic, moderately cold water should be used, and weak disinfecting solutions made with either of the already mentioned substances may be used with advantage.

Infantile Cholera.—The injections should, be used during the algid stage. They are useless or harmful during the stage of collapse. Tannin, salt, benzoate of soda, or a few (six to the quart) drops of creosote may be used with the water.

Dysentery.—This treatment may be used from the beginning of the disease. Cold compresses should be applied to the abdomen, and, for nourishment, milk or iced tea with rum. After the bowels have been well cleansed, astringent or disinfectant solutions should be injected several times daily.

Typhoid Fever.—The temperature may sometimes be lowered by this treatment, weak solutions of salt or of tannin, if there is diarrhea, being used. If the temperature is elevated from the beginning, a one per cent solution of salicylic acid, or a two per cent. solution of salicylate of soda of lukewarm temperature is recommended.

Intestinal Invagination.—A warm bath should be used for a quarter to a half an hour, then the child should be placed upon the couch, anesthetized, and should receive an injection. Lukewarm water should first be injected, then very cold water, in the hope of exciting peristaltic contractions. Cases are reported in which peristaltic action has been excited by the injection of water which is charged with carbonic acid.

Intestinal Worms; Oxyuri.—For two successive mornings the patient should take a mild purgative containing infusion of senna leaves, sulphate of magnesia, and manna. On the third morning an enema of soap-suds should be given, and this treatment should be continued for eight successive days. For tape-worm, early in the morning a full injection of lukewarm water should be

given, and in the evening a second one containing some efficient purgative. The next morning one should introduce into the stomach by means of an esophageal sound half a pint or more of a strong decoction of pomegranate root. After the first stool succeeding this dose, a full injection of lukewarm water will facilitate the expulsion of the parasite.

Catarrhal Icterus.—A daily irrigation with lukewarm or cool water will excite strong peristaltic movements which will facilitate the flow of bile through the biliary channels. A. F. C.

Ashby: Some Remarks on Infant Feeding. (*Med. Chron.*, May, 1886).

Pfeiffer, Biedert, and Meigs by their recent writings have modified the views which were held concerning the differences between human and cow's milk. The mistake which has usually been made in analyses of human milk, however carefully made, has been the taking of one specimen or a small number of specimens as the type of human milk, when in fact it differs greatly in different individuals, according to their constitution, their development, their food, the period of lactation, etc. Pfeiffer's recent analyses of human milk have been tabulated in the following manner.

	HUMAN.			Cow.
	8th day.	65th day.	371st day.	
Water	89.62	89.72	87.72	85.7
Solids	10.38	10.28	12.28	14.3
Casein	1.665	.844	.718	
Albumen	.700	.652	.834	4.82
Fat	3.345	1.827	3.984	4.3
Sugar	3.274	6.22	6.088	4.03
Salts	.446	.180	.126	.54

As lactation advances the quantity of albumen and salts diminishes, while sugar of milk increases. Cow's milk is four times as rich in casein as human milk, the proportion is about the same as to salts, while there is nearly half as much again of sugar of milk in human as in cow's milk. The dilution of cow's milk presents decided difficulties when the attempt is made to give it the chemical properties of human milk, the greatest difficulty being the disposition of the casein which when coagulated in a thick curd is so difficult of digestion for the infant stomach. A method of peptonizing milk which is suggested is to add four ounces of boiling water

to four ounces of milk, then to add a fourth of one of Benger's peptonizing powders (in this country Fairchild Bros. and Foster's peptonizing powders give very satisfactory results) and two teaspoonfuls of cream. After the mixture has stood for ten or twenty minutes a teaspoonful of sugar or of sugar of milk may be added, after which the mixture can be taken at once. The stools after the use of this food may have curds in them, but they will be less hard and lumpy than those which are passed when pure milk is used. Biedert's cream mixture has stood the test of time and is to be recommended. It is especially useful for children who are suffering from vomiting and diarrhea, the stools being green or yellow and containing much undigested food. Modifications of the original formula may be made by using barley water in the place of ordinary water, also by adding dextrose or maltose. Meigs's mixture is also to be recommended, the method of preparation being the following: seventeen and three quarters drachms of milk sugar are to be dissolved in a pint of warm water, the mixture being kept in a cool place, and not longer than one or two days. The child's food is to be composed of two tablespoonfuls of cream, one of milk, two of lime water, and three of the sugar of milk water, or in this proportion. Meigs's mixture differs from Biedert's in containing an alkali and a greater quantity of sugar. Peptonized milk or artificial human milk will usually be found to be preferable to either condensed milk or patent foods.

Descroizilles: Artificial Feeding (Gavage) in Very Young Children. (*Rev. Mens. des Mal. de l'Enf.*, [from *Arch. de Tocol.*, Dec. 1885,] Apr., 1866).

These experiments were begun by the author in his service at the Hospital for Sick Children (*Hôpital des Enfants Malades*) at the beginning of the year 1885. The esophageal catheter which was used was a red, soft rubber tube No. 15 or 16 (French) which was projected into the esophagus for eighteen or twenty centimeters. Through it, by means of an hydrocele syringe was injected from three to four dessertspoonfuls of milk mixed with half a teaspoonful of rum. In all of the author's cases there was no resistance to the introduction of the catheter. The first child who was treated by this means was a boy nine months old with a persistent diarrhea. He was much emaciated and dentition had not yet begun. He had been nourished by the bottle from

the fifth month. The new treatment was practiced three times daily, with good results for a week; after that he sank rapidly and died.

Another boy eleven months old, also without teeth, and suffering from gastric and intestinal derangement, bore the treatment well for ten days with diminution of the morbid symptoms. He was then attacked with broncho-pneumonia and died in forty-eight hours. A third child was placed upon this treatment, who was also emaciated and marasmic and he too died at the end of five days. In two other cases gavage was practiced, the infants being also fed from the bottle. The results were satisfactory, both children surviving. The following method of introducing the esophageal catheter was used; the child was held in front of a window by a nurse, his neck and shoulders being covered with a napkin. The tongue was then depressed with the forefinger of the left hand, the finger being carried as far as the isthmus of the pharynx. Along the finger as a guide the catheter, its tip having been dipped in glycerine, was then projected, usually for a distance of twenty centimeters. The operation is an easy one, and seldom attended by any complications. Reflux of the injected material may take place unless the distal end of the tube is held at a higher level than the mouth. A tendency to reflux or regurgitation usually indicates that too much fluid has been introduced into the stomach. This method of alimentation has been successfully used by Dauchez, Stapfer, Saint Germain and Tarnier. The author's experience has not yet been sufficiently large to enable him to give an opinion as to its value. A. F. C.

Simon: *Treatment of Typhoid Fever in Children.* (*Revista de Ciencias Méd.*, [from *Rev. Inter. des Sciences Méd.*, No. 27,] Apr. 25, 1886).

It is a mistake to treat all cases of this disease after the same method; each case should in many respects be a law to itself. In general, however, in the early stages of the disease the skin should be kept cool and moist by the use of aromatic lotions. The bowels should be kept freely open, and rectal injections, which will serve as internal baths, should be given daily. The treatment should vary with the period of the disease. In the first week if there is much general disturbance small doses of tincture of aconite root and codeia should be given. In the second week opium, perchloride of iron, and alcohol,

either in the form of distilled liquors or generous wine, are indicated; the alcohol will have the double effect of lowering the temperature and sustaining the strength. The iron may be commenced in doses of two drops daily for children from eight to fifteen years of age, and gradually increased to twelve. The opium may be given by rectal injections; the nourishment should be mainly of milk, and wine diluted with water. During the third week quinine and nux vomica will be indicated, and if diarrhea is present the author prefers to treat it with injections containing laudanum, and hot fomentations to the abdomen. Of the complications which may occur, cerebral disturbances are first considered. They are to be treated with valerian, assafetida, camphor, and chloral. The last is particularly useful and may be given in eight grain doses, or fifteen grain doses if given by the bowel.

Should pulmonary inflammation complicate the disease cold baths systematically used are advocated. Antimonial and other emetics are believed to be harmful rather than useful. Revulsives are often very efficacious in the form of dry cups and flying blisters. Alcohol in large doses, and acetate of ammonium may also be given. Intestinal hemorrhages rarely occur among children in typhoid fever, but should they be present they are to be treated with astringents, with perchloride of iron, ergotine, etc. A tampon of cotton saturated with a weak solution of perchloride of iron, for the nostrils may be required should epistaxis be present.

Should the temperature of the body be very high, in addition to the free use of alcohol, baths at a temperature of 22° to 25° C. may be given three or four times during the day, the patient being kept in the water several minutes and carefully protected afterward. In the adynamic form of the disease the quinine, the iron, the nux vomica, and the alcohol will all be of service. During convalescence the patient must be closely watched, and especially must the nutrition be carefully attended to, to guard against relapses.

A. F. C.

2. MEDICINE.

Blache: Dilatation of the Stomach in Children. (*Rev. Mens. des Mal. de l'Enf.*, Feb. '86.)

This condition is not a rare one among children as a result of continued digestive trouble, especially in those cases in which diarrhea and constipation alternate. A

number of such cases have been seen by the author in children between the ages of twelve and eighteen months, especially among those who have been fed from the bottle and have been fed too frequently. Less frequently the same condition occurs among children who have been nursed at the breast. In most of the author's cases there was a precedent condition of gastro-enteritis. Moncorvo, of Rio Janeiro, who has also written upon this subject, found that most of his cases originated from bad hygienic surroundings, from hereditary syphilis, or from malarial intoxication; but this experience did not occur to the author, the digestive and intestinal troubles, as already observed, being most prominent as causative influences. The stools in these cases are frequent, watery, and contain, more or less, half-digested food with an abundance of epithelium from the intestinal mucous membrane. They are discharged from the bowel in a stream or jet, and are accompanied by the passage of gas. They sometimes have a fetid odor and sometimes an acid one, or no odor at all. Their greenish color is a noticeable point, the color being due to a change from the natural brown or yellow by the action of the acid juices which convert a portion of the bile into biliverdine. They also contain a quantity of glairy mucus. All these indications point to an advanced condition of gastro-intestinal catarrh, and in nine times out of ten the author affirms that a dilated condition of the stomach will co-exist. Thus, it is seen that a dilated condition of the stomach is only an attendant phenomenon of a local or diathetic diseased condition. The diagnosis of this condition is not thought to be a difficult matter, even though the præ-gastric walls do not project beyond the general level of the surface of the body. By placing the child upon the back and drawing up the knees a sound may be obtained by percussion, which is called a hydro-aërial sound, which indicates a dilated condition of the stomach. Of the consequences of this condition two at least are to be noted, one having reference to the heart and lungs, the other to the nervous system. As to the former, the author has noticed that in some children the excessive enlargement of the stomach is associated with dyspnea and with cardiac palpitations; as to the latter, night-terrors have sometimes been associated. In addition to the excessive and improper feeding which may produce this condition, the author also mentions as exciting causes, weaning, dentition, and bad hygienic surroundings. A tonic and reparative treatment is, of course, indicated.

A. F. C.

Fränkel: Report of an Endemic of Infectious Colpitis in Children. (*Arch. f. Kinderh.* [from *Arch. f. Path. Anat.*, Bd. xcix., H. 2], B. vi., H. 5.)

The endemic in question was observed by the author during a period of three years among children in the Hamburg General Hospital. Most of the patients were those who were suffering with, or had recently suffered with scarlet fever. Of the older patients in the same wards, and receiving the same attention, including girls who had reached the age of puberty, and young boys, all of them suffering from scarlet fever, not one was found who was suffering with this disease either in the vagina or urethra. Analogous cases of colpitis were also observed in other wards of the hospital, which were far removed from the scarlet fever ward. Examination of the vaginal secretions in these cases revealed the presence of a coccus, which seemed to differ in no respect from the gonococcus of gonorrhea (Neisser's). None of the other micro-organisms which are usually so abundant in both normal and pathological secretions of the vagina were found in these cases. As to the clinical symptoms, pain in the movements of the lower extremities, or in urination, and swelling of the adjoining lymphatic glands were not observed. There was also absence of the customary changes in the mucous membrane at the entrance to the vagina, and of inflammation in the glands of Bartholin, the urethra, and bladder which one usually sees in true gonorrhea. The cause of the disease was chronic in all cases, the quantity of the secretion varying. In regard to treatment, injections of sublimate were of no use; irrigations and applications of creosote were considered useful, but did not diminish the duration of the disease, which was usually about three weeks. Relapses were never observed. No relation between this disease and the scarlet fever, which appeared simultaneously with it is claimed, nor is an explanation of it attempted. It is also improbable that the disease is identical with true gonorrhea; the clinical symptoms would oppose such a theory. The propagation of the disease may have been due to the use of common bath-rooms and apparatus, but it is curious and inexplicable why the boys, and the girls who had attained the function of menstruation, surrounded by the same influences and a like suffering from scarlet-fever, failed to contract the disease. A. F. C.

Demme: Contribution to the Study of the Infection of Tuberculosis. (*Rev. Mens. des Mal. de l'Enf.* [From *Wiener Med. Wochen*, 1885, No. 14], Jan., 1886).

A little girl of seven years died in consequence of tuberculous peritonitis which was in no way complicated with intestinal or mesenteric tuberculosis.

The peritonitis had supervened upon a tuberculous ulceration of the umbilicus, which began a few days after birth. It was believed that this was the point of entrance of the tuberculous virus into the body of the child. At the time of the child's birth the mother was suffering from chronic tubercular infiltration at both apices of the lungs.

Another reported case was also of interest with respect to the etiology of tuberculosis in children. The tubercle bacilli are often observed in chronic eczematous and impetiginous eruptions, and the author had seen a child, three years of age, with good family history and well-developed, but having an eczematous patch upon the groin which became a means for the entrance of a tuberculous process, the latter finally provoking a tuberculous inflammation of the coxo-femoral articulation. The child had been under careful observation, and was without tuberculous taint until after he began to play with a little girl seven years of age, who had tuberculosis. From this time the presence of the bacilli was constant.

In another case a child was nursed by a tuberculous mother, and during the third week of life began to have a rebellious diarrhea. Soon afterward two rectal fistulæ developed, and in the discharge from them miliary tubercles were found. He died in his third year and at the autopsy were found an abundance of tubercles upon the peritoneum, tuberculous ulcerations upon the mucous membrane of the intestine, and swelling of all the mesenteric ganglions, some of which were caseating and purulent. In the liver there were isolated tubercles, but the brain, lungs, heart, pleuræ, and bronchial glands were intact.

A. F. C.

Cadet de Gassicourt: Some Difficult Cases of Laryngitis Stridulous. (*Jour. de Med. de Par.*, April 25, 1886).

The author observed that while most cases of this disease are so simple that their diagnosis is easy, and their course harmless, there are exceptional ones in which the symptoms present quite a different form from the usual one. The following is the description of such a case.

The child was eleven months old, and on the eleventh

of February was attacked with laryngitis, having the usual hoarse voice and cough. This condition continued for two days. Suddenly on the third day, at eleven o'clock in the morning, there was a sudden paroxysm of suffocation with suprasternal retraction. Three-quarters of an hour later there was another attack with sub- and suprasternal retraction. From this time the suffocation and the spasmodic contraction continued almost without interruption for fifteen to eighteen hours, the child being in a state of profound asphyxia after each paroxysm. Though no false membrane was visible the diagnosis evidently was either laryngitis stridulous, or true croup, and as the bad symptoms soon disappeared the decision was in favor of the former. A second case seen within a few days of the foregoing presented phenomena almost identical, a severe spasm following in quick succession a less severe one, and this procedure being repeated so frequently that the child nearly died from exhaustion. In these uncertain cases great assistance may be derived from auscultation. In the intervals between the attacks of suffocation the vesicular murmur is weakened but not abolished. It only disappears during the attack itself. Another important fact to be remembered in connection with these prolonged cases of false croup is that tracheotomy is sometimes required. The prospect of suffocation is so imminent that it is the only prudent course to follow, the immediate necessity of the patient being in all cases the indication for operation. A. F. C.

Bordonari (Plaisance): Worms and Verminous Affections. (*Rev. Mens. des Mal. de l'Enf.*, Jan., 1886).

This work contains the result of microscopical examinations of normal and pathological feces, and of the eggs of entozoa. Ten cases are also published the analyses of which show that they were very interesting ones. In brief they were as follows.

(1.) Intermittent fever and gastric disturbance which suggested the presence of worms. None were there, however, and the child recovered.

(2.) There was fever which resembled typhoid. The feces were examined, and the eggs of ascarides found. After the worms had been expelled the fever disappeared.

(3.) Reflex epilepsy caused by the presence of ascarides and oxyuri. Bromides were of no use. The child was cured after using parasitocides.

(4.) A chemical action was observed in this case, produced by ascarides. It manifested itself in an intense

pruritus on the face and neck, by erythema, and large bullæ. The chemical action is said by Lenckart to be due to an odoriferous substance which is contained in the muscular fibres of the ascarides.

(5.) An enormous development of ascarides in a nursing child. They were expelled.

(6.) Pseudo-chlorosis. Preparations of iron did no good. The feces were examined and the presence of a tenia solium ascertained. After its expulsion the child recovered.

(7.) Anal pruritus which was supposed to be due to congestion of the hemorrhoidal vessels. It was caused by oxyuri, which were expelled, and the trouble disappeared.

(8.) Poisoning by santonine and narrow escape from death. Forty-five centigrams had been taken without medical advice.

(9.) Intestinal occlusion from an accumulation of ascarides. Death resulted, and the autopsy revealed the foregoing.

A. F. C.

Thaon: The Infectious Broncho-Pneumonias of Childhood and their Microbes. (*Rev. Mens. des Mal. de l'Enf.*, Feb., 1886).

In this paper the author leaves out of consideration tuberculous broncho-pneumonia, which is also an infectious form of the disease, and only concerns himself with those forms which are associated with diphtheria, measles, and whooping-cough. He showed to the Society of Biology (Paris) before which his paper was read, pictures representing the histological structure of the bronchioles and alveoli in these diseases. They showed that the exudate, (in these diseases) is entirely formed by microbes situated in the pus-cells, and in the altered and degenerated large epithelial cells. In order to make these preparations, the autopsy should be made within twenty-four hours of the patient's death, the most recent areas of exudation in the pulmonary lesion being selected, and that method of staining which will produce the least alteration in the microbes. He was able to find in the lung tissue the two varieties of microbes which have been described by Loeffler as present in diphtheria, the zoogloæ and bacilli, the former of which he considers the more constant, though Loeffler was of the contrary opinion. They were found in the most recent lesions, while bacilli were only seen in older ones at the extremity of the bronchioles, and at points which had been invaded for some time. The microbes of measles and whooping-

cough are larger than those of diphtheria, and occur in the form of chains of diplococci, and bacilli. They were found in great numbers in the alveolar exudates of the lungs in the first stages of inflammation, before suppuration appeared. The proliferation of embryonal cells, in the large connective tissue spaces of the lungs, in these lesions, which has been described by Cornil, and which is comparable to those which are found in the contagious peripneumonia of cattle is due to a lymphangitis and peri-lymphangitis of these connective tissue-spaces. In the lymphatics of these regions accumulations of microbes are sometimes found which may excite true thrombi of the vessels.

A. F. C.

Wood, J. W.: Absence of One Kidney and Carcinoma of the Other in a Child Three Months Old. (*N. Y. Medical Record*, May, 29).

The doctor was called to see a little girl, three months old, suffering from diarrhea. He prescribed paregoric and castor oil; the next day the child was much better, and he did not see her again for ten days. He was then called and told that the patient had not passed water for two days. The child was evidently in pain, alternately crying and dozing, the features were pinched, the pulse very rapidly, but the temperature normal. The abdomen was greatly distended, with superficial veins prominent and somewhat varicose. An attempt at catheterization was made, but was unsuccessful owing to the fact that the meatus urinarius was much higher up in the vagina than normal. Hot applications over the abdomen were ordered, but no urine was passed. The child gradually failed and died three days later, having had complete suppression of urine for five days. At the autopsy, the abdomen was found to contain about a gill of serum. The spleen was normal. The left kidney was absent. On the right side was found a large firm mass, binding down the intestines, which upon removal was seen to be an enlarged and cancerous kidney. Its length was five inches, its other diameters three inches. The ureter was enormously dilated, and was seven inches in length. The bladder was hypertrophied, contracted, and empty.

3. SURGERY.

Ketch: Remarks on Lateral Curvature, with Special Reference to its Occurrence in Children. (*N. Y. Med. Record*, April 24.)

The aim of the paper is to investigate the relations of age and sex to this deformity. In watching the progress of a case of rotary lateral curvature one cannot fail to be impressed by the very slow, but nevertheless constant and progressive character of the disease. Its insidious nature, both in onset and course, are among its most striking characteristics, and it is against this element of progression that we have mostly to contend. The mass of authorities speak of the disease as being for the greater part connected with a certain period of life, namely, the age of puberty. At this time, when the question of form and dress becomes a matter of greater importance, especially in females, in whom the majority of cases occur, the patients are subjected to a more rigorous examination. The character of the curvature is often now far advanced. In none of the special works on lateral curvature of the spine is there more than the scantiest mention made of this disease occurring in childhood. In order to arrive at proper conclusions concerning the age at which lateral curvature of the spine is most frequently first observed, the doctor has collected 229 cases taken from the records of the N. Y. Orthopedic Dispensary. The cases selected are only those where the typical symptom of rotation was present. They are divided into three classes: 1. Those where the deformity was first observed from birth to the twelfth year, or the age of childhood. 2. Those where the deformity was first observed from the twelfth to the eighteenth year, or the age of puberty. 3. Those where the deformity was first observed from the eighteenth year and upward, or the age of complete development. Of the 229 cases analyzed, 189 occurred in females and 40 in males. The youngest case observed was two weeks old, the oldest, sixty years.

During first	period, 120 cases = 52 per cent.
“ second	“ 94 “ = 41 “ “
“ third	“ 9 “ = 3½ “ “
Age not stated	6 “ = 2½ “ “

From this analysis the following conclusions are derived: 1. That rotary lateral curvature is principally a disease of childhood, and may be either congenital or acquired. 2. That puberty, except as a concomitant occurrence, which may, by its attendant circumstances, increase it or bring it into unusual prominence, has no direct causative influence. 3. That lateral curvature should be looked for early in life, and as a factor in treatment the early inspection of children's spines becomes most important toward the prevention of the deformity.

Blaches: Purulent Pleurisy in Children and its Treatment. (*Le Concours Méd.*, June 12, 1886).

The author makes the assertion that if this disease is more common in childhood than at other periods of life, it may be accounted for in the fact that scarlatinal is a very common disease among children, and that it frequently has purulent pleurisy for a complication. Concerning the puncture of the pleura for the purpose of aspiration, if it is properly done it will not be a means for converting a serous into a purulent deposit. It must also be borne in mind in this connection that fluids which to the naked eye are serous, are often purulent histologically. The author reminds one that to be absolutely certain one is not carrying infection by the aspirating needle or trocar, a new one should be used for each operation. One is quite safe, however, in using an instrument which has been brought to red heat in the flame of an alcohol lamp. Solutions of carbolic acid for the disinfection of these instruments are not always effective as was shown by some experiments which were quoted. If solutions of sublimate are to be used, they should be as strong as 1 to 1000; safest of all, as already remarked is a new needle for each operation. The diagnosis of purulent pleurisy is not always easy to establish unless a subcutaneous abscess has also developed in connection with the purulent deposit. The conditions which point with the greatest degree of probability to the existence of this disease are scarlatina and other infectious diseases, a depraved general condition, fever with cachectic condition, and diarrhea. If an attack of pleurisy continues for more than three weeks with a child, the presumption is in favor of suppuration. Though suppuration occurs it is not impossible that it should heal without aspiration, the deposit undergoing a granulo-fatty change, being thus converted into a kind of emulsion and rendered suscepti-

ble of absorption. This process occurs only in exceptional cases, the discharge by fistula, either bronchial, cutaneous, intercostal, or of some other locality being much more frequent. The rule in these cases is that thoracentesis will be required, and perhaps many times. The deposit will gradually become less in quantity until at length, no more is secreted. If after aspiration has been practiced five or six times a cure is not obtained, the author believes that thoracotomy should be performed. If this operation is too long delayed the dangers are that the pulmonary tissue will become condensed as the adhesions increase in thickness, and that the thoracic walls will become retracted with consequent deviation of the vertebral column and persistent deformity. If an incision is required, it should be made with the trocar for a guide with which the exploratory puncture has first been made. Such incisions are not dangerous if made with reasonable precautions and should be followed by irrigation of the cavity with disinfectant solutions. Of the latter a sublimate solution of 1 to 1000, or a boric acid solution of 1 to 50 are preferable. As the temperature declines the irrigation should be practiced with less frequency until at length two or three times a week will suffice. The wound should be covered with carbolyzed gauze, drainage tubes should be kept in the cavity and these should be gradually reduced in length as the pleural cavity contracts. The diet should be as tonic in character as the digestive functions of the patient will allow. If thoracotomy is required a general anesthetic may be used but not to the extent of profound narcosis. Local anesthesia may be employed in the form of a spray of ether upon the surface which is to be incised, in conjunction with the inhalation of the general anesthetic. An operation of this character should always be performed with care and deliberation.

A. F. C.

Bibliography.

THE SURGICAL DISEASES OF CHILDREN. By Edmund Owen, M.B., F.R.C.S. Four chromo-lithographs; eighty-five engravings. Philadelphia: Lea Bros. & Co.

The volume is a convenient hand-book for reference in surgical affections of children. Considering that the author has had to confine his treatment of this rather extensive subject to about five hundred small octavo pages, the work is remarkably complete, and will be found sufficiently exhaustive to meet all requirements of the general practitioner. The arrangement of the type, too, and the addition of a full index materially aids its usefulness. The arrangement of the subject-matter itself even appears to have been suggested more by practical considerations than by a desire to appear methodical; so much so, in fact, that the treatment of some of the subjects has, to a certain degree, suffered in consequence. Thus, in the section on joint-diseases each joint receives separate attention. By this means much repetition is necessitated, while some affections escape proper mention. No differentiation is made, for example, between tubercular disease and chronic osteomyelitis of a given joint (which two diseases certainly differ in prognosis and treatment, though they resemble each other in the course they run), and by treating such affections as the latter, symptomatically, under the subsequent headings of synovitis and abscess, the clinical picture as a whole suffers.

Notwithstanding the evident attempt to make the book one of ready reference, it is not at all tersely dry, but, on the contrary, owing to the fluent style of the writer, it is very interesting reading, and the fact that cases have occasionally been introduced to elucidate the subject under discussion, renders its perusal even more attractive. Throughout the text the manual bears ample testimony of the writer's experience and familiarity with his subject.

The school of surgery represented by the author is that of the best English surgeons, and those who are partial

to this school will no doubt welcome its appearance. The majority of the quotations made are from English pens, and, although allusions are made to names like Billroth and Koch, the author does not appear very partial to their teachings. No mention is made in the chapter on hip-joint disease of tuberculosis, and of "disease of the knee-joint" the author believes that the bacilli present in the swollen tissue are possibly but accidental, and only in the description of the operation of excision of the knee-joint do we find the casual remark that the synovial membrane should be removed, which is believed by some to be impregnated with infective and devastating bacilli. Bacterial advances of recent years have not received the attention which might be expected in a hand-book of the present date. The author knows of no method of differentiating venereal gonorrhea from simple purulent vaginitis, nor is he aware that the so-called strumous tubercles, those nodules occurring in the skin of children, actually contain tubercle-bacilli.

The term "strumous" plays an important role throughout the book, in spite of the fact that the author appears to recognize that it would be better discarded, as being devoid of definite meaning, and quotes Holmes to this effect. He defines struma as "potential tuberculosis."

We point out these details more with the intention of defining the author's position in regard to pathology than with a view to criticism.

In the treatment of diseases the author accepts the more modern improvements, at least to considerable extent. Poultices are done away with. Listerism is endorsed. The Esmarch bandage, however, is not approved on account of the "troublesome oozing" occurring after its use. No mention is made of antiseptic tapping or aspiration for acute traumatic synovitis, nor of massage treatment for the care of recent sprains.

The methods of operation given are those most generally in use in England.

Finally we would call attention to the chapters on contagious diseases, in the first part of the book, on diphtheria, and syphilis as being very ably written.

W. W. VAN ARSDALE, New York.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

AUGUST, 1886.

[No. 8.

Original Communications.

CONTRIBUTION TO OUR KNOWLEDGE OF THE
SUMMER DIARRHEA OF INFANTS.

BY J. LEWIS SMITH, M.D.,

Professor of Diseases of Children in Bellevue Hospital Medical College.

The July number of the ARCHIVES contains an interesting and instructive paper on the summer diarrhea of infants from the pen of Dr. Haven, of Boston. Since the attention of the readers of this journal has been directed to this important disease, and all city physicians at this midsummer time are much interested in it, it has occurred to me that some observations on this form of diarrhea, as it occurs in New York, may be useful to the profession. I prepare this paper the more willingly since it seems to me that the type of this malady, as it occurs in this great metropolis, is more severe than in the New England cities. If I repeat what Dr. Haven has so well stated, I wish to be considered as emphasizing his views, and expressing their applicability to the disease in New York as well as in the city where his observations were made.

The diarrhea of Infants during the summer season, sometimes from its frequency designated the summer epidemic of the cities, has often been discussed by writers in the medical journals. But although its causes are understood by physicians, and are to a great extent preventible, it is every summer so common and fatal in the cities, that it necessarily arrests the attention not only of the profession, but also of the public. A large proportion of the infants of the wealthy escape this malady by the employment of wet-nurses, and removal to the country as soon as the hot weather sets in; but among the poor who occupy tenement houses, and who, with their small earnings, are unable to better their condition or provide what their infants so urgently require, the summer diarrhea occurs as certainly as the hot weather returns.

In New York City this malady begins about the middle of May in a mild form, increases in frequency and severity throughout June, and during July, August, and September it is the most common disease met with in practice, and is by far the most fatal. The mothers after watching the moderate diarrhea of their infants for two or three weeks, are now thoroughly alarmed by the increase of symptoms and the evident loss of flesh and strength, and they do all that their limited means allow to save their babies. They crowd the dispensaries, they appear at break of day in the parks, and upon the ferry-boats with their little patients in order that they may obtain fresh air. The floating hospital scarcely accommodates all who apply for admission in hope that the excursion may invigorate the system and restore a healthier digestion. But, notwithstanding the praiseworthy endeavors of these mothers in whom, though poor, the maternal love and attachment are as strong as in the wealthy, the sunken features of the infants, senile in appearance, their hollow eyes over which the eyelids no longer close even in sound sleep, and their wasted extremities show that death is not far off unless relief be obtained from some other source. The frequent appearance of the white crape on the doors in every row of

tenement houses during July, August, and September indicates the severity of this malady among the city poor, and the large mortality which constantly attends it. Although the many improvements in the construction of domiciles in order to obtain purer air, greater cleanliness of the streets, a better quality of the milk in common use than that formerly served to families, and the preparation of infantile foods more suited to the digestive functions of the infant than those which until recently were in common use, have aided in diminishing the number of those affected by the summer diarrhea; yet with all these aids there is such ignorance of infantile requirements and such mismanagement in the care of infants that this disease, although in most instances preventible, is likely to continue for years to come one of the most frequent and fatal of the maladies of infancy. In New York City not less than 3000 infants die every year from diarrhea during the three months, between the middle of June and the middle of September. This large mortality is, to a great extent, attributable to errors promulgated by the medical profession in times gone by, and I always, so far as possible, take the opportunity to correct them.

Not a summer passes that I do not see infants perish from the mistaken idea on the part of their parents that the diarrhea from which they are suffering is due to dentition, and that they pass with greater safety through the period of teething if they have frequent stools. The diarrhea is allowed to continue unchecked, in the belief that it relieves suffering or ill effects from the teeth. The fretfulness and progressive loss of flesh and strength resulting from the intestinal catarrh, the parents suppose will cease when the teeth are cut, and they look anxiously for their appearance. Many mothers attempt to rub through the teeth, as they express it, by their fingers or a thimble, and by so doing produce greater tenderness and swelling of the gums, causing harm rather than benefit. These parents do not perceive that there must be some other cause of the diarrhea apart from dentition, or it would be as common and severe in the winter as in the

summer; but finally when the features begin to be thin and sunken, the extremities wasted, and their babies are in a most critical state they become alarmed and seek medical advice, probably with the request that something be done to relieve the difficult teething. They are surprised when informed that their infants have a most dangerous disease due to causes entirely distinct from teething, and that it might have been much more easily checked two or three weeks previously than at the present time. Our ancestors, whose knowledge of the causes and nature of diseases was very faulty and incomplete, really thought that dentition was an important factor in producing diseases. It was very convenient for them to attribute to the teeth, symptoms and ailments which they did not understand, and this simple physiological process was regarded by them as a not infrequent cause of death, so that one of the first instruments which the young physician procured was the gum lancet. In Great Britain teething is still regarded as a common cause of death, but in this country fortunately it no longer appears in the list of diseases; but many years will elapse before the poor and uneducated in the tenement houses, whose infants suffer most from the summer diarrhea, will learn that dentition is not a cause of death. They still hold to the traditional belief, the disastrous effects of which are so apparent in reference to the disease which we are considering.

As regards the etiology of the summer diarrhea of infants we recognize two causes, the one atmospheric and the other dietetic. Impurities in the air of the cities, noxious gases and micro-organisms engendered by the prolonged action of heat, where so many sources of insalubrity exist, must be regarded as a common and efficient cause of infantile diarrhea. Striking instances showing this fact might be mentioned. A few years since, on May 10th, when the weather was but moderately warm, a very offensive odor pervaded the wards of the New York Infant Asylum, and it was traced to a large manure heap, which a gardener was disturbing in the immediate vicinity. Four of the infants previously well, sickened with a severe diarrhea, one of them dying. The

number of infants in the Asylum was not above one hundred, and at no time during the subsequent hot weather was this disease so severe. Many years since, when acting as one of the Sanitary Inspectors of the Old Citizen's Association, my attention was directed particularly to those streets, which were inhabited by a dense population, and were not sewered, so that stagnant water and refuse matter, collected around the domiciles, and along the sidewalks. From personal inspection I found that nearly all the infants residing in these localities, and breathing day and night the noxious vapors, suffered from diarrhea. The same was true of those residing in localities where the occupations, such as "bone boiling," rendered the atmosphere peculiarly offensive. Fortunately the cause of the summer diarrhea which we are now considering has been partially removed or suppressed in New York City, and I think in most of our cities, by improvements in house architecture through which better ventilation is obtained, the suppression or removal beyond the city limits of those occupations which produce foul gases, by more general drainage and greater cleanliness of the streets, and by greater personal and domiciliary cleanliness; yet the time is probably distant when the atmosphere of the large cities in midsummer will have such a degree of purity, that infants can breath it with safety.

The dietetic cause of the summer diarrhea is not less important than the atmospheric. Infants under the age of twelve months remaining in the city during the summer should, if possible, have breast milk. Inexperienced mothers do not know the danger which awaits their young babies when they wean them in or before the warm weather. No food has yet been prepared which is a proper substitute for breast milk. Proprietors and agents beseech you for recommendations of their foods, and they show you how closely the analyses of them resemble those of breast milk, but by the test of experience all of them are found to be inadequate to serve as substitutes for the natural aliment.

That infants in their first year should be nourished mainly, if not entirely, at the breast is apparent from the

following facts which are fully established by the experience of every summer: Bottle-fed infants under the age of one year, remaining in the city rarely escape the summer diarrhea, and the younger the infant the more severe is the diarrhea, whether dentition be present or not. Most bottle-fed infants under the age of six months, die with symptoms of indigestion and diarrhea before the return of cool weather unless removed to the country. I am convinced from a close observation of the summer diarrhea, during the last thirty years, that the peril of these infants is not overstated. If a young infant at the breast be suddenly weaned in hot weather, whatever the mode and kind of subsequent alimentation, it is immediately attacked by diarrhea, which is very likely to be fatal. Not infrequently mothers suspecting themselves pregnant, wean their babies in midsummer, ignorant of the risk which is incurred. It is better that they continue suckling their infants if they be under the age of twelve months, until cool weather. The preferable way would be to go to the country and wean there, or employ a wet-nurse. Another important fact bearing on the alimentation of infants I have often observed—namely, that infants weaned immediately before warm weather usually are affected with diarrhea early in the summer, and a diarrhea which is likely to persist and become dangerous. I always advise against weaning after the month of April, until October.

That I have not overstated the importance of lactation, as a means of preserving the health of young infants, as a means of preventing indigestion and diarrhea, is abundantly shown by the experience in any of the New York institutions, where infants are received. Many years ago, the late Mrs. Richmond, a woman of remarkable energy though carrying about an incurable disease, conceived the idea of establishing the New York Infant Asylum. She succeeded in obtaining a Charter at Albany and pecuniary assistance. A building was fitted up at Woodlawn, at 106th Street, on the banks of the Hudson, a part of the Island free from malaria and sparsely inhabited. The atmosphere seemed as pure as anywhere in the country, and cows to furnish milk for the infants, grazed in the

pasturage around the house. One hundred and fifty cribs were provided, and the house was opened with the admission of twenty-three foundlings, mostly under the age of three months. Any one who has had experience with the feeding of infants in New York might have foretold the result. The infants were all bottle-fed. They became fretful, had diarrhea and vomiting, wasted away, and one after another died. The institution was apparently required and foundlings were brought in almost daily, but the warm weather was coming on and the new recruits shared the fate of their predecessors. They died, as the many autopsies which I made showed, of enterocolitis. The one hundred and fifty cribs were never filled, and seldom more than thirty of them. Mrs. Richmond exerted herself beyond her strength, but all to no purpose. These infants at such an age could not live during the warm weather on cow's milk, whether mixed or not with farinaceous food. The deaths kept pace with the admissions, and the philanthropic founder of the institution became extremely despondent at the result. Afterward better counsel prevailed, and now in the same asylum located at 61st Street and 10th Avenue, every infant under the age of twelve months has breast milk, and the mortality during six months is not greater than it was in half a month during the time to which I allude. Diarrhea among the wet-nursed babies of the institution is now rare.

In that much larger institution, the New York Foundling Asylum, every effort is made to employ wet-nurses for the foundlings, but a considerable number are necessarily bottle-fed. These are placed in a ward which is known among the employés of the Asylum, as the ward of the "*dying babies*." Many agents of proprietary foods have been allowed to make trial of their preparations in this ward, but no one has thus far published the result for it has been uniformly one of failure. In all the institutions in and about New York where infants are bottle-fed, the result has been similar, establishing the fact that an inappropriate and faulty diet is the common cause of indigestion and diarrhea in infants.

(TO BE CONTINUED.)

ON HIP DISEASE IN CHILDHOOD.

BY G. A. WRIGHT, B.A., M.B., OXON., F.R.C.S., ENG.

Surgeon to the Children's Hospital and Assistant Surgeon to the Royal Infirmary, Manchester, England.

[CONTINUED FROM PAGE 365, JUNE NUMBER.]

C A S E S.

Name.	Age.	Onset.	Pre-disposing Cause.	Ex-citing Cause.	State of Joint.	State of Acetabulum.	Date of Operation.	State of Femur.	Result When Last Seen.
Alfred Dalton.	J. M. 7 6	June, 1881.	Phthisical history.	Fall.	Abscess.		Sept. 30, '81	Epiphysis caseous and partly gone; subchondral cavities; erosion of cartilage.	Two sinuses; one and one-fourth inches shortening; stiff; anemic; growing fast; Feb. 1884.
James T. Entwistle.	4 6	Early in '81.	Nil.	Nil.	Abscess.	Much diseased.	Sept. 30, '81	Cartilage in parts gone; upper epiphysis half destroyed; diaphysis rarefying osteitis.	Dec. 15, 1881, fat and well, but still sinus; walks with crutches and patten; sinuses nearly all closed; limb somewhat flexed; general health very good. Oct. 13, 1882.
John May	9	Early in '79.	Nil.	Nil.	Abscess.	Caries and necrosis.	May 26, 1881	Articular cartilage gone; a deep carious pit at site of ligamentum teres.	Still sinus, but general condition good, 1885. Oct. 1885, lardaceous; dying.
Emily J. Howard.	5	April, 1880.	Always delicate.	Fall.	Double hip disease; pus in left joint.		Aug. 12, '81 Left side.	Necrotic cartilage; cavity in neck.	Nov. 1881, still sinus; gets about with patten and crutches. Jan. 1882, mobility good; can walk without crutches. Mar. 1883, doing well.
Fanny Ashton.	4 6	April, 1880.	Measles.	Nil.	Abscess.	Cartilage gone.	Oct. 13, 1881	Upper epiphysis all gone, and most of epiphyseal cartilage; cavity in neck.	Nov. 27, '81, wound not healed; general condition good; doing well; walks with limp. March 20, 1883.

Hip Disease in Childhood.—(Continued.)

Hannah Hopkinson.	9 9	Oct. 1880.	None.	None.	Joint incised; contained turbid serum and lymph; cartilage loose.	Cartilage loose.	Aug. 18, '81	Articular cartilage all gone; epiphysis caseous; shaft inflamed; had acute septicemia at time of excision.	Had septicemia and carbohemia; died Aug. 24, 1881.
Emma Thomas.	8 8	Early in '79.	Nil.	Nil.	Abscess in joint; cartilage loose.	Pelvis perforated; good deal of diseased bone.	Aug. 11, '81	Necrosed cartilage; inflamed epiphysis.	1885, still a sinus in front; fat and well; gets about with crutches and patten.
Albert E. Drinkwater	8	1876.	Nil.	Nil.	Old, healed sinuses; malposition, for which osteotomy was performed; fresh mischief followed.		Nov. 10, '81	Head of bone nearly gone; remains pale and sclerosed.	Dec. 15, 1881, is anemic; but doing fairly well; gets about with patten, etc. Feb. 1883, still sinus, and is pale, but in good position. May, '85, one sinus; hardly any discharge; is neglected, and is flexed and adducted and stiff, but walks well; has a little pain in knee in wet weather.
Julia Cumming.	1 9	Early in '81.	Nil.	Nil.	Abscess.		Sept. 30, '81	Epiphysis caseous; cartilage loose; epiphysis nearly separated.	Nov. 20, 1881, little discharge; wound healthy; does not gain ground. Mar. 27, 1883, fat and well, but sinuses; half inch shortening.
Elizabeth O'Neill.	5 2	June, 1878.	Nil.	Nil.	Sinus.	Sequestra and perforation.	June 30, '81	Head and neck of femur represented by a small necrosed button of bone.	Dec. 15th, not doing very well; hectic. June, '82, all wounds except one healed; two sequestra were taken from this; general condition good; three-quarter inch shortening; nearly stiff.
James Wharton.	2	Jan. 1885.	Whooping-cough.	Nil.	Abscess.	Smooth, but enlarged.	May 7, 1885	Cartilage entirely eroded, and bone much destroyed; epiphysal cartilage perforated; in neck a small cheesy sequestrum (about size of pea); trochanteric epiphysis eroded somewhat.	Doing well, May 12, '85. Very ill, July 10, 1885; got measles; died of general tuberculosis, July 13, 1885.

Hip Disease in Childhood.—(Continued.)

Name.	Age.	Onset.	Pre-disposing Cause.	Exciting Cause.	State of Joint.	State of Acetabulum.	Date of Operation.	State of Femur.	Result When Last Seen.
Joseph Hardacre.	Y. M. 4 6	Feb. 1881.	Phthisical history.	Injury.	Joint incised, April 12th; did badly.	None at time of operation.	April 30, '81	Articular cartilage gone; had pyemia at time of operation.	Died of pyemia, with extensive pelvic necrosis, May 15, '81.
Mary M. Barker.	7	August, 1881	Nil.	Fall.	Abscess.	Extensive disease.	Sept. 30, '81	Epiphysis a loose, hard sequestrum.	March, 1885, soundly healed; good mobility; can stand on bad leg alone; one-third inch shortening from drawing up, not arrest of growth.
Ellen O. Grady.	10 3	Sept. 1880.	"Strumous" acute periostitis of opposite tibia a year ago.	Nil.	Abscess.		Nov. 1, 1880	Epiphysis a loose, hard sequestrum.	Oct. 11, 1881, wound superficial; three inches shortening; free mobility; can walk. May, '83, almost healed; good mobility; three inches shortening. Mar. 1885, much the same. July, 1885, as above; fat and well; two sinuses.
Thomas Mercer.	4 1	March, 1880	Nil.	Fall.	Sinus.	Diseased; gouged.	Oct. 13, 1881	Head of bone almost gone; soft and cartious, as far as neck.	1885, had quite healed, but walked too much, and some discharge followed; is almost well again. Oct. 2, 1885, fat and well; fixed; one superficial sore.
Alice Mottram.	5 11	May, 1880.	Nil.	Fall.	Sinuses.	Inflamed.	Nov. 25, '81	Upper epiphysis entirely gone; bone below pale, with hyperemic patch in it.	Heard of, 1885; healed, and gets about without any apparatus.
Elizabeth Devney.	11 2	Nov. 1874.	Nil.	None.	Abscess.	Sequestra.	Nov. 24, '81	Remains of neck and upper part of shaft caceous.	1885, still unhealed, but steadily improving; general condition good. Oct. 10, 1886, as above; limb not likely to be of much use.

Hip Disease in Childhood.—(Continued.)

Willie Jackson.	5	Spring of '80.	Nil.	Nil.	Joint incised, Feb. 19, 1881; caseous matter in it.	Some small bits of carious bone removed.	March 10, '81	Head carious; little cartilage left.	Died July 9, 1881; he had pulpy disease of same knee at time of operation, and the thigh was fractured in protruding the head of the bone; died of pneumonia and exhaustion; tubercle.
John Mosely.	11		Nil.	Nil.	Abscess.	Perforated.	Oct. 30, 1880	Bone soft, and breaking down; no head left.	Did no good: amputation, April, 1881; fat and well in 1885, but still a little discharge.
John J. Kirke.	11 6	April, 1879.	Nil.	Nil.	Sinus.	Diseased.	Dec. 9, 1881	Cartilage necrosed and loose; bone very soft.	Died March 1, 1883; amputation was advised but refused.
Annie Wilson.	4 8	April, 1881.	History good.	None.	No external abscess.	Bare.	Dec. 15, '81	Upper epiphysis half absorbed; remains caseous on both sides of epiphyseal line.	Feb. 19, 1882, sinuses still unhealed; sent out in Thomas's splint.
Harriet E. Armitage	9 9	Oct. 1878.	Phthisical history.	Falls.	No external abscess.	Rough.	Jan. 15, 1881	Subchondral caries.	Did fairly well for a time, but died of pelvic disease, July, '81
Ernest Jones.	7	March, 1876	Nil.	Fall.	Abscess.	Rough; gouged.	April 2, 1881	Head carious.	June 16th, two inches of diseased femur were removed; was heard of up to Oct. 1882, when he was getting about, wounds nearly healed.
John A. Darbishire.	9	Oct. 1880.	Nil.	Fall.	Abscess.		March 25, '81	Head carious.	Dec. 1881, feeble and anemic; much thickening about femur; two inches shortening; has been neglected at home.
Alice Pope.	5 6	End of 1879.	Nil.	Nil.	Sinus.	A bare spot.	Nov. 20, '80	Head all gone.	Feb. 7, 1881, all healed; two and a half inches shortening. Nov. '81, good power and mobility; one and a half inches shortening. Dec. 1881, a superficial discharging spot. Feb. 1882, the hip, which had been soundly healed, had again broken down.
Sarah J. Naylor.	10 3	Before 1873.	Phthisical history.	Nil.	Sinuses.	Perforated.	Nov. 1, 1880		Jan. 29, 1881, amputation. Dec. 1881, wounds not healed, but general condition fairly good. Oct. 1885, still sinuses.

Hip Disease in Childhood.—(Continued.)

Name.	Age.	Onset.	Pre-disposing Cause.	Ex-citing Cause.	State of Joint.	State of Acetabulum.	Date of Operation.	State of Femur.	Result When Last Seen.
William J. Connor.	1 ¹ / ₂ M. 4 7	Oct. 1880.	History stru-mous.	Nil.	Abscess.	Largely perfor-ated.	Oct. 21, 1881	Epiphysis of head loose.	Discharged in June, '82, in bad condition.
James Costello.	5	August, 1879	Nil.	Injury.	Pus in joint; car-tilage loose.	Granulation-lined.	Oct. 6, 1881	Epiphysis partly absorbed and sclerosed.	Feb. '83, in a Union Infirmary, in bad position, with no appa-ratus and numerous sinuses.
Thomas Ball.	7 4	August, 1878	Nil.	Nil.	Sinuses.	Sequestra.	Aug. 17, '82	Epiphysis caseous, and ca-seous patches below epi-physial line; greater part of head gone.	In Oct 'ber had erysipelas. Nov. 2d, amputation and removal of much pelvis; died shortly after operation.
Edwin Handforth.	6 6	June, 1881.	History good.	Suppose injury.	Abscess.	Much diseased.	Feb. 2, 1882	Head mostly gone; caseous bone extended to epi-physial line, also to trochan-teric epiphysis; another yellow patch below epi-physial line; bone around hyperemic.	Feb. 1883, is apparently dying of lardaceous disease.
Martha Ashtonhurst.	7 7	April, 1882.	History good.	Fall.	Abscess.		May 11, 1883	Head mostly gone; caseous bone extended to epi-physial line, also to trochan-teric epiphysis; another yellow patch below epi-physial line; bone around hyperemic.	Died, exhausted, March, 1885.
Edward Fido.	6	Oct. 1884.	Nil.	Nil.	None.	Healthy.	May 7, 1885	Cartilage a little thinned; beneath it a narrow con-gested zone; below this bone anemic throughout half the epiphysis.	Wound superficial, June, 1885. Oct. 20, 1885, healed; mobility through 60°; no pain; straight; shortening three-fourths inches, functional none actual; can stand upon leg.
Thomas Buckley.	9 5	June, 1882.	History tu-berculous.	Injury.	Sinus.	Bare and exca-vated.	July 19, 1883	Head of bone almost entire-ly gone; a small seques-trum; a spot of disease in trochanteric epiphysis, also in shaft; epiphysial cartilage nearly gone.	Jan. 1884, is well; one and one-fourth inches shortening; fat and well; mobility through 45°. Feb. '85, has a little dis-charge from three sinuses, otherwise as above. Sept. 29, 1885, one sinus only.

Hip Disease in Childhood.—(Continued.)

Mary Howard.	4 11	March, 1880	Diarrhea.	Injury.	Abscess.	Fairly healthy.	Nov. 23, '83	Head of femur caseous.	Oct. 1885, sound and well; mobility to right angle; one and one-fourth inches shortening, due to pushing up of femur, not arrest of growth. Feb. '85, as above. May 19, 1885, as above; shortening one and three-fourth inches practical; actual, three-fourths inch. Jan. '84, strong and well; three-fourths to one inch shortening. Feb. '84, hip nearly healed, but has disease of elbow. April, 1885, elbow has been excited; hip nearly well, but is tuberculous and going down hill. April, 1886, one sinus in hip still unhealed; has sacro-iliac disease.
William Roberts.	10 6	1874.			Sinus.	Diseased; some bone removed.	Aug. 10, '83	Head largely destroyed.	Jan. 1884, sinuses tucking in; little discharge; is fat and well. Feb. 1885, as above. Oct. 13, 1885, not much discharge; gets about with patten and crutches.
James E. Carter.	7 1	July, 1881.	None.	None.	Abscess.		Jan. 11, 1883	There was grating in the joint.	Jan. 1884, sinuses tucking in; little discharge; is fat and well. Feb. 1885, as above. Oct. 13, 1885, not much discharge; gets about with patten and crutches.
William Mack.	8		Phthisical history.		Abscess.	Largely perforated; sequestrum.	July 23, 1883	Half of head gone; all cartilages; no disease below epiphysal line.	Jan. 1884, sinuses tucking in; little discharge; is fat and well. Feb. 1885, as above. Oct. 13, 1885, not much discharge; gets about with patten and crutches.
John Robinson.	4 1	Sept. 1882.	None.	Injury; over-use.	Pus in joint.		May 19, 1883	A sequestrum the size of a cherry in a cavity below the line of section, and a similar one in the head of the bone.	Jan. 1884, sinuses tucking in; little discharge; is fat and well. Feb. 1885, as above. Oct. 13, 1885, not much discharge; gets about with patten and crutches.
Andrew Haigh.	6 7	Sept. 1880.			Abscess.	Granulation-covered.	March 22, '83		Jan. 1884, sinuses tucking in; little discharge; is fat and well. Feb. 1885, as above. Oct. 13, 1885, not much discharge; gets about with patten and crutches.

Hip Disease in Childhood.—(Continued.)

Name.	Age.	Onset.	Pre-disposing Cause.	Ex-citing Cause.	State of Joint.	State of Acetabulum.	Date of Operation.	State of Femur.	Result When Last Seen.
Eliza I. Rhodes.	Y. M. 4 11	Before 1882.				Eroded.	Feb. 3, 1883.	A pulpy cavity in the femur.	Heard of as having died in 1885.
Jane Hughes.	7 8	Dec. 1882.	Phthisical history.	Injury.	Abscess.	Rough.	Feb. 14, 1884	Head partially destroyed; lower and inner part, including part of diaphysis, eroded; part beyond mortised; in parts rarefied; in others anemic.	Aug. 1884, almost healed; general condition good.
James Sarrin.	4 1	Oct. 1883.	Phthisical history.		No abscess.		July 17, 1884	Subchondral caries; cartilage thinned; epiphysis pale, hard, and rather transparent-looking.	March, 1885, healed.
Mary E. Sadler.	7 2	April, 1882.	History good.	Fall.	Abscess.	Sequestra.	Nov. 9, 1884	Most of femoral epiphysis gone.	April, 1885, wound almost dried up; condition good; mobility through 75°; shortening one and three-fourth inches, functional; none in femur; straight; fat and well.
Catherine Shaw.	6 11	Jan. 1882.			Abscess.		March 27, '84	Feb. 1885, sound and well; in good condition; walks.	Feb. 1885, sound and well; in good condition; walks.
George Roberts.	2	Nov. 1883.	Measles.	Fall.	Abscess.	Granulation-lined.	June 26, '84	Cartilage overhead smooth, but rather red and mortised; bone healthy.	July 19, '84, healed; one-fourth inch shortening. March, '86, one-fourth inch actual, one inch functional shortening; walks well; almost perfect mobility; can stand on it alone.
Frederick Lomas.	8 2	Nov. 1879.	Phthisical history.	Fall.	Abscess and sinus.	Healthy.	Nov. 30, '83	Part of head gone; one or two caseous patches, with hyperemic bone round; at line of section bone soft.	Feb. 1885, healed to a superficial sore; general condition very good.

Hip Disease in Childhood.—(Continued.)

James Bowker.	8 7	June, 1881.	Phthisical history.	Abscess.	Bare; sequestra.	Nov. 30, '85	Head of bone nearly all gone; disease extended below epiphysal line.	Feb. 1885, sound and well; one and three-fourth inches shortening, entirely from pushing up of femur; mobility fair; walks for ten minutes daily.
William Tate.	5	Feb. 1882.	Tubercles in lungs (secondary).	Abscess.	Very soft.	Feb. 29, 1884	Bone very soft; epiphysal cartilage loose; soft granulation patches in diaphysis; trochanteric epiphysis diseased; shaft below section quite soft and squashy.	Feb. 1885, healed. April, 1885, again a superficial sore. Oct. 1885, fat and well, except coxitis; a small superficial sore over hip; fair mobility.
Herbert Chadwick.	7	Sept. 1882.	Injury; fall.		Healthy.	Nov. 6, 1884	Disease both above and below epiphysal line; subchondral caries.	Jan. '85, still sinuses and much thickening; general condition good. June 30, 1885, sinuses closing and shrinking; no pain; thickening less; in Thomas's splint; fat and well. Oct. 13, '85, one sinus; splint off; very well.
John Buckley.	4	Nov. 1883.		Abscess.	Bare.	Feb. 21, 1884	Subchondral caries; bone mottled.	July, 1884, an abscess in front of excision wound and a good deal of glandular enlargement. May, 1885, small superficial sore; good mobility; one and one-fourth inches functional shortening; none in femur; fat and well.
Fred. W. Burrows.	2 8	Nov. 1883.	Measles.	Abscess.	Fairly healthy.	June 19, 1884	A sequestrum in the shaft; below the section; epiphysis healthy, except just adjoining the epiphysal line at one point; below this a large caseous granulation area, including three hard, loose sequestra; disease chiefly at inner part of neck; cartilage yellow and rough.	Feb. 1885, very slight serous discharge; in good condition. June 30, '85, sound and well; not walk yet.

Hip Disease in Childhood.—(Continued).

Name.	Age.	Onset.	Pre-disposing Cause.	Exciting Cause.	State of Joint.	State of Acetabulum.	Date of Operation.	State of Femur.	Result When Last Seen.
Alice Rose.	Y. M. 4 6	Sept. 1883.	Otorrhea 12 months ago.		Abscess.	Rough.	Oct. 23, 1884	Bone mottled above and below epiphysial line; subchondral caries; cartilage quite loose, and in one spot perforated.	Feb. 1885, hip sound and well.
Mary Fort.	4	April, 1883.		Fall.	Abscess.	Sequestra.	Jan. 10, 1884	Head almost gone; bone below hyperemic and rarefied; a patch of sclerosis at lower and inner part of neck.	June, 1884, wound unhealed; flabby; general condition poor.
Matilda Harris.	7 9	About April, 1880.			Sinus.	Rough.	Oct. 11, 1883	Head of bone rough and bare.	Jan. 1885, healed; general condition very good. Oct. 1885, superficial sore again; has been doing too much.
Ernest Taylor.	8	Nov. 1883.			Abscess.	Bare and rough.	Nov. 14, '84	Bone mottled; cartilage thin and eroded; a patch of disease in the shaft.	Feb. 1885, still sinuses, but very little discharge; general condition fair. Oct. 10, '85, two sinuses; others healed; straight and well in self; gets about with crutches.
Susan Moores.	10				Abscess.		June 12, 1884	Cartilage of head gone; necrosed cartilage in joint; surface of bone eroded; cancellous tissue very dark-colored.	Feb. 1885, in good condition, but not quite healed. April, '85, several sinuses; condition fair.
Albert E. Collier.	7	May, 1882.			Sinus.	Extensively diseased; many sequestra; innominate bone almost separated into its three parts.	May 28, 1884	Cartilage gone; bone bare and rough, mottled, sclerosed in parts, soft in others; under surface of neck soft and friable.	Feb. 1885, still one sinus, but discharge is very little and getting less; general condition good.

Hip Disease in Childhood.—(Continued.)

Herbert Longwood.	6 4	March, 1881	Phthisical history.	Fall.	Abscess.	Bare.	April 4, 1884	Cartilage thinned, but not gone; subchondral caries; epiphysis pale and mottled; similar patch in neck at under part.	Jan. '85, still sinuses, but doing very well. July 18, 1885, two inches practical; one inch actual shortening; sinus scabbed over for past two months; not much power in limb; no pain; general condition good; to leave off Thomas's splint; gets about in patten and crutches.
Lucy McClelland.	5 6	Jan. 1883.			Sinus. ;		June 9, 1884	Head of bone all gone, except one small bit; a large sequestrum in upper part of shaft.	April, '86, very little discharge; sinuses puckering in healing; general condition improving fast.
William Harvey.	4 10	August, 1881		Scarlet fever.	Abscess.	Fairly sound.	Jan. 19, 1884	Upper epiphysis almost gone; below epiphysal line bone rarefied in some parts, sclerosed in others.	Feb. 1885, nearly healed; three-fourths inch shortening in femur itself entirely; general condition good. Oct. 1885, superficial sore; gets about with patten and crutches.
Robert Beckett.	7	Nov. 1882.		Injury; scarlet fever.	Abscess.	Carious; perforated; sequestrum.	July 12, 1883	All cartilage gone, except "marginal bone," epiphysis cheesy.	March, 1884, amputation; did fairly, but has not healed.
Phebe Ogden.	8 11	Nov. 1876.			Abscess; sequestrum.	Extensively diseased.	January, '83	Extensively diseased.	Oct. 1885, still several sinuses; general condition fairly good.
John Thom. Garratt.	9	June, 1879.	Nil.	Fall.	Sinus.	Cartilage gone; cavity enlarged; bone fairly healthy.	Jan. 5, 1885	All epiphysis gone, except one bit; epiphysal cartilage bare; some repair going on.	Was attacked with cellulitis. Ulceration took place into the femoral artery, and he died Jan. 18, 1885.
Bessie Kay.	6	Dec. 1882.	Nil.	Fall.	Abscess.	One small patch of disease.	Jan. 5, 1885	Cartilage thinned and detached; bone pale to below epiphysal line.	General tuberculosis; died of tubercular meningitis, March 4, 1885.
Ada Wallace.	7	August, 1883	Nil.	Nil.	Abscess.	Perforated.	Jan. 8, 1885	Cartilage almost entirely stripped off; bone below worm-eaten and anemic, and mottled; just below epiphysis two separate centres of caseation.	Doing fairly well; still a sinus; in Thomas's splint. May, '85, general condition very fair.

Hip Disease in Childhood.—(Continued.)

Name.	Age.	Onset.	Pre-disposing Cause.	Exciting Cause.	State of Joint.	State of Acetabulum.	Date of Operations.	State of Femur.	Result When Last Seen.
Thomas Shaw.	6	May, 1884.	Family history tuberculous.	Fall.	Abscess.	Granulation-lined.	Jan. 15, 1885	Bone of neck hard, and pus infiltrated has extended down into the shaft; epiphyseal cartilage replaced by granulation tissue; in epiphysis of head one caseous patch, rest inflamed, but not cheesy; disease spread in both directions from just below epiphyseal line.	Unhealed, May, 1885.
Charles Lovatt.	5	Sept. 9, '85.		Nil.	Right, abscess; left, abscess.	Right, rough and soft; left, somewhat diseased.	Right, Nov. 27, 1884. Left, Jan. 19, 1885.	Right, cartilage entirely gone; bone eroded, pale and anemic, except at epiphyseal line, where it was congested; below epiphysis bone mottled. Left, head pale; cartilage peeling off; some disease in shaft below section.	Right healed; left, a sinus; general condition very fair, in double Thomas's splint, May, 1885. Oct. 1885, as above; does not improve.]
Bertha Brown.	7	Sept. 1883.	Whooping-cough and measles 2 years ago.	Nil.	Abscess.	Cartilage loose.	Feb. 26, 1885	Head and epiphyseal cartilage gone.	Does not gain ground; sent to seaside, May, 1885; not healed. Oct. 1885, much as above; still sinuses; otherwise better.
Albert Oakes.	7	May, 1884.	Tubercular history.	Fall.	Abscess.	Cartilage loose.	Feb. 26, 1885	Cartilage in parts loose and thinned, nowhere perforated; subchondral caries; bone mottled at one spot close to epiphyseal cartilage.	Still a sinus; doing well in Thomas's splint, May, 1885. Oct. 10, 1885, still sinus, as above.

Hip Disease in Childhood.—(Continued.)

Robert Bridge.	7	July, 1884.	Nil.	Kick.	Abscess.	Very much dis- eased; perfor- ated; seques- tra.	March 5, '85	Cartilage over head of bone thinned in places and loose; subchondral caries; epiphysis pale; sub-epi- physal area mottled and soft; round ligament not entirely gone.	Did very well up to May, 1885, when a fresh abscess formed; still in hospital, Oct. 1885; nearly healed; fat and well.
Annie Brady.	10	Sept. 1883.	Tuberculous history.	Fall.	Abscess.	Sequestra; per- forated.	April 28, '85	Epiphysis pale; epiphysal cartilage loose and per- forated; below this (in neck) bone soft and mot- tled; trochanteric epiphy- sis soft and injected.	In hospital, doing well, May, 1885, July, '85, wound healed; still much thickening. Oct. '85, sinuses again appeared.
Herbert Bowden.	5	June, 1884.	Nil.	Fall.	Abscess.	Sequestra; per- foration.	Nov. 20, '84	Cartilage ulcerated and ero- ded; bone mottled exten- sively below epiphysal line.	March, 1885, has still a sinus, but is fat and well; in Thom- as's splint.
Elizabeth Leonard.	5	Jan. 1885.	Measles and whooping- cough.	Fall.	Abscess.	Several large se- questra; pubic portion of pel- vis loose from rest.	May 31, 1885	Epiphysis nearly half gone; cartilage loose.	Doing well; still in hospital, May, 1885.
William Jones.	4				Abscess.	Several seques- tra.	Oct. 30, 1884	Cartilage on head thinned and loose; bone pale and mottled.	Dec. 3, 1884, sent home with one small sinus nearly healed.
Henry Horridge.	3	Left, March 11, 1884.			Right, abscess; left, abscess.	Right, healthy; left, smooth.	Left, Jan. 29, 1885. Right, Oct. 10, 1884.	Right, head extensively diseased; cartilage entire- ly eroded; and bone pale and anemic down to epi- physal line. Left, exten- sively diseased; bone soft and squashy; cartilage al- most entirely gone; dis- ease reached below epi- physal line.	Right healed; in double Thom- as's splint; left, a sinus; sent to seaside in May, '85; general condition improving much.

Hip Disease in Childhood.—(Continued.)

Name.	Age.	Onset.	Pre-disposing Cause.	Ex-citing Cause.	State of Joint.	State of Acetabulum.	Date of Operation.	State of Femur.	Result When Last Seen.
Arthur Fitzgerald.	Y. M. 4	Nov. 1883.	Nil.	Fall.	Abscess.	Necroted.	Oct. 9, 1884	Cartilage at upper part entirely eroded, at lower part eaten into; whole epiphysis diseased, and epiphysal line perforated at one spot.	May, 1885, doing well, but still a sinus; in Thomas's splint; general condition good. Sept. 29, 1885, healed straight; mobility 50°; well; shortening one and one-fourth inches practical, one inch actual; a little pain in hip in morning. Recovered slowly and with difficulty, but, May, 1885, is in good condition, though still sinuses; a greatly shortened limb.
Eleanor Coope.	17	Jan. 1877.	Nil.	Fall.	Sinus; much shortening.	Fairly healthy, but somewhat thickening felt per rectum.	Jan. 21, 1884		Recovered slowly and with difficulty, but, May, 1885, is in good condition, though still sinuses; a greatly shortened limb.
Walter Baily.	6	Jan. 1884.	Whooping-cough two years ago.	None.	No external abscess.	Rough at one spot only.	June 25, '85	A large sequestrum occupied the head, and extended down to the line of section; a softish spot at one point in shaft below section.	July 15, '85, wound superficial. Oct. 10, 1885, all healed; to leave off Thomas's splint; no pain; well.
Susannah Wood.	10	Jan. 1885.	Hip disease in family.	None.	Abscess in front of joint.	Perforated; sequestra.	July 2, 1885	Cartilage loose and thinned; epiphysis pale and cheesy-looking; below epiphysal line a cheesy patch; trochanter mottled in centre.	Tube removed July 23d; doing well. Heard of Oct. 23, 1885; one sinus; no pain; in Thomas's splint; in good position; not much discharge; in bed.
Robert Carter.	5	March, 1884	Spine disease in family.	Fall.	Abscess.	Much roughened.	July 23, 1885	Head of bone partly absorbed, rough, and almost bare; epiphysis quite cheesy; below epiphysal line mottled and rarefied.	Still discharging, Aug. 24, 1885.

Hip Disease in Childhood.—(Continued.)

Thomas Fred. Day.	9	Jan. 1885.	None.	None.	Slightly rough at one spot; head of bone lay dislocated above rim of acetabulum.	July 23, 1885	Surface of neck, where it rested against edge of acetabulum, rough and eroded; head smooth; cartilage loose; bone soft and pale beneath.	Wound superficial, Aug. 1885. Oct. 10, 1885, all healed; in Thomas's splint; fat and well; no pain.
Frederick Walker.	11	Dec. 1884.	None.	Injury.	Abscess.	July 15, 1885	A small sequestrum in the head of the bone led to the joint through a little opening in the cartilage covering the head.	Oct. 1885, doing well; two sinuses; very little discharge; gets about in Thomas's splint; no pain; straight; well.
Abraham Collinge.	5	Jan. 1884.	None.	Fall.		June 18, '85	Cartilage almost entirely eroded; particles of cheesy bone extended through the epiphysal cartilage to the shaft; a zone of inflammation on each side of epiphysal cartilage.	Wound superficial, Aug. 11, 85.
Minnie Hoyle.	7 6	Christmas, 1884.	None.	Fall.	Abscess.	Oct. 24, 1885	Large sequestrum in neck; about one-third of head gone.	Nov. 28th, wound healed.
Elizabeth B.	3	Jan. 1885.	None.	None.	Abscess.	Oct. 8, 1885	Head flattened and distorted; cartilage thin and discolored; two sequestrae in the head and neck, and one in shaft.	Dec. 17th, in Thomas's splint, and healing rapidly.

ON THE VALUE OF EXTERNAL APPLICATIONS
IN THE TREATMENT OF CHILDREN.

BY FRANK H. KNICKERBOCKER, M. D., YPSILANTI, MICH.

The delicate organism of the infant is not only easily acted upon by those environing and internal influences which determine the various deviations from normal standards of structure and function; but, on account of the unstable character of its predominant and rapidly growing nervous system, the predominance of reflex over the voluntary actions, the more extensive and rapid metabolic processes, the rapid and variable circulation, it is readily responsive to those medicinal agents in the hands of the physician; and especially to the various external applications which may be employed in bringing about a return to a normal equilibrium of the various functions of its delicate system. The frequently heard assertion that the anatomy, physiology, and diseases of children are the same as in adults, and that the general practitioner who understands pathological processes in adults, and the proper therapeutic measures to combat them, is necessarily a competent person to treat the diseases of infants and children, is nonsense. Pediatrics should be an independent study, and each year sees it attaining nearer to that independent position which, by right, it deserves. In pathology there is seen a class of diseases seldom or never met with among adults, such as the affections peculiar to the newly-born—the acute exanthemata and various infectious diseases.

In the department of therapeutics there are also peculiarities; such as the tolerance of arsenic and mercurials, and the wonderful sensitiveness to narcotics. Functional disturbances have a greater significance than in adults.

When homeopathy came upon the dosers, it had one good effect; it forced them to make their medicines palatable, and more easily administered to children. And,

now that the administration of medicines to children has become so easy, many physicians have a pleasant habit of prescribing agreeable medicines, and letting the old-fashioned poultices and plasters go with the old-fashioned dosings. I am convinced that the general practitioner in neglecting the use of the various external applications, is neglecting the most valuable means at our command for the treatment of many of the diseases of children.

As a requisite for the proper treatment of children, next in importance to an accurate knowledge of foods and feeding, I should place a familiarity with the various kinds of external applications, manner of making and applying them, and the conditions for which they may be applied to advantage. Let us take up, then, separately, some of the various agents that may be used to advantage externally, and see in what way, and in what conditions each may be of use.

It is unnecessary to speak of the necessity of fresh air and sunlight in the restoration of sick infants and children to health; I shall, therefore, pass to a brief consideration of the uses of *water*.

Effects of Cold Water.—When one hand is immersed in cold water, the temperature of the other hand also falls. Cold not only cools the surface of the body but affects markedly the condition of internal organs through the nervous system, especially in children.

Brown-Séquard has shown by experiment, that cold applied to the lumbar region contracts the arterioles of the kidney, and, consequently, diminishes the blood supply to those organs. When cold water is applied to the surface of the body, the *cutis anserina* immediately becomes manifest, the skin becomes paler, the respiration is sobbing, and the pulse is quickened. If the temperature be not too low the condition of reaction soon supervenes. The coldness is succeeded by a feeling of warmth, and the depression by a feeling of exhilaration.

The bath should not be continued too long for this *tonic* effect.

If the tonic effect is well shown the circulation is equal-

ized and invigorated, tissue metamorphoses take place more rapidly; and with the increased tissue changes and activity of assimilation, the appetite is increased, and the body gains in weight and strength.

The cold bath should have a temperature of from 40° to 70° Fahr.

Wet-Pack.—This is occasionally an efficient way of applying cold water. A large towel may be wrung out of cold water and wrapped about the little patient, and covered with a blanket. The sense of chilliness at first experienced is soon followed by an exhilarating glow.

When reaction is well established, the pack should be removed and the body vigorously rubbed with dry towels. Unless active diaphoresis be the object, the application of the wet-pack should not continue more than fifteen minutes. If the little patient be enveloped with the wet sheet, standing, and rubbed vigorously with the sheet, reaction will be more quickly induced.

When the pack is removed the patient should be vigorously rubbed with coarse towels.

The douche is where the water is poured from a height upon the patient. This means is rarely available in the treatment of children.

The external applications of cold water in the treatment of the diseases of children are many, and some of them very important.

In tonsillitis, diphtheria, and croup, the cold-pack applied to the neck will oftentimes give great relief. In laryngismus stridulus, the application of cold water in this way will sometimes quickly relieve the distress in breathing.

For spasm of the glottis, Morell Mackenzie¹ recommends that while the child's body is placed in a warm bath, that cold water be dashed in the face.

In the first stage of laryngo-tracheal diphtheria, among other means, the same authority² recommends that an ice-bag be applied to the throat.

¹ Dis. Phar. Lar. and Trachea, page 357.

² Phar. Larynx and Trachea, page 131.

One of the most important uses of cold water is in fevers, for its antipyretic effects.

Zeimssen's method by placing the patient in a tepid bath, and gradually cooling the water, by the addition of ice, to the required temperature, which may be 60° Fahr., or even 40° Fahr., according to the height of the pyrexia and the rapidity of its descent, may be sometimes available in treating children. The bath may be used from one to six times a day, and continue each time until the temperature is brought down to the required limit.

In the treatment of children's diseases the wet-pack is, however, generally preferable, on account of the ease with which it is applied. The little patient may be put in the pack several times a day, and remain from five minutes to an hour. Hyperpyrexia often kills. The deplorable determination may sometimes be averted by the cold bath; and it is in these cases that its remarkable effects are most conspicuously shown. In scarlatina, for instance, when the temperature rises to 105° or 106°, and there are alarming symptoms, the cold wet-pack will prove of very efficient service. Most families have a prejudice against the application of cold water, especially in the eruptive diseases. It will, therefore, be necessary, usually to use that means least likely to frighten the patient, and meet with opposition on the part of the family.

Trousseau, in the treatment of these cases with a high temperature, was in the habit of placing the patient in a bath-tub, and directing that three or four pailfuls of water be dashed over him every one-fourth minute to one minute, after which he was put in bed, and covered with the bed-clothes, without being dried. The physician in private practice who should try this "dashing" process, would in most cases find himself unceremoniously dashed out of the house.

Zeimssen's method might be used in some cases; but the cold-pack or cool sponging will usually meet with less opposition and will be found very effectual.

J. Lewis Smith¹ says that in most cases he prefers to

¹ Pepper's System of Med., vol. 1, page 542.

reduce the temperature by the constant application to the head of a rubber bag containing ice. The bag should be one-third full, so that it may fit over the head like a cap.

If the temperature is above 104°, he makes a similar application over the neck at the same time, which not only abstracts heat, but diminishes the pharyngitis, adenitis, and cellulitis.

A. Jacobi¹ in an article on "Typhoid Fever in the Young," says: "To reduce high temperatures quinia has been frequently recommended, though it has not served me well in infectious diseases." I will add that I have found quinine not only useless in these cases, but under certain conditions, even with a high temperature, exceedingly dangerous. A rational empiricism is safer in the treatment of children than a blind adherence to scientific theories."

"The best antipyretic is cold."

"No cold bath for cold extremities; no more cold bath, when once after it, the extremities remain cold or cool. In these cases the surface becomes colder than before, it is true; the interior, however, is warmer than it was."

"Warming-pans ought always to be used to the feet and legs when cold is to be applied."

In a very full and interesting article, William Perry Watson,² after speaking of the various ways already mentioned of applying cold water, directly or indirectly, speaks of a rubber cot which he uses, made of rubber tubing and sheet-lead, which may be folded about the little patient.

In acute cerebral congestion, cold water may be applied to the head while the feet and legs are immersed in warm water, or covered with mustard and flaxseed poultices.

Cold to the spine is one of the most effective remedies in some cases of chorea. It is most conveniently applied, perhaps, in the form of an ether spray.

In infantile convulsions, cold may be applied to the head, while the body is immersed in warm water.

¹ Archives of Pediatrics, March, 1885.

² Archives of Pediatrics, September, 1885.

In my experience, weakly cachectic children are best treated by the application of the morning cold-bath, followed by vigorous rubbing; and I believe it to possess more beneficial results, in most cases, than any system of medication without the external application. I have used it for several years in these cases with the happiest results. I am in the habit of prescribing, at the same time, small doses of Fowler's solution, as an aid to digestion and assimilation in these cases. This treatment should be continued for some length of time, if there are no contra-indications; the effect of two or three applications will be hardly noticeable. It is well to begin by using tepid water, and have it a little cooler at each succeeding application until a temperature of about 60° Fahr., is reached. It is well to put a little salt in the bath.

Under the treatment indicated, these cases will sometimes improve with astonishing rapidity; the weight will increase, the appetite become better, the color return to lips and cheeks, and the irritative cough, so common in such cases, cease.

Dr. Forchheimer, in speaking of the treatment of rachitis, says: "I rely upon these baths (salt and cold water) and upon fresh air as the main agents for curing this disease."

Warm and Hot Water.—What is the effect when the body is immersed in warm water? It causes at first a pleasant sensation; the skin becomes red, the pulse increases in rapidity, but the tension is less, and a sense of giddiness and depression is soon experienced. Extreme muscular weakness supervenes if the bath be prolonged. Transpiration from the skin is increased. The temperature of the body rises. There is rapid disintegration of tissue. The warm bath should have a temperature of from 90° to 100° Fahr., and the bath from 100° to 106° Fahr.

It is not necessary to speak of the various ways of applying warm and hot water. The Turkish or Russian bath, the hot-pack, etc.

Extremely hot water is similar in its immediate effects

to cold. The same remarks that were made in regard to the application of cold water to the neck in laryngismus stridulus, etc., may be applied to hot water.

In acute desquamative nephritis, warm fomentations may be applied to the back with good effects.

Wakefulness or restlessness of children may often be overcome by a warm bath taken just before bed-time.

In various diseases, as meningitis, cerebro-spinal meningitis, or threatened convulsions, the body may be immersed in warm water, or flannels wrung in warm mustard-water may be applied to the feet and legs, with the happiest results.

I have again and again seen this simple means followed by quiet and sleep, after bromide of potash—the child's opium—in large doses has been without effect.

Where there is congestion of the brain from any cause, and a warm bath is required, the physician should see to the temperature of the water himself; for if it be too hot, it may defeat the end in view, and instead of relieving the engorged vessels, the shock of the too warm water on the cutaneous nerves may cause a rupture of blood-vessels, a gush of blood may be from the nose, or sudden dilatation of one pupil and sudden death, a very unpleasant result, one which I have known to happen, and which is likely to bring a valuable means of relief and cure into disrepute.

Flannels wrung from warm water and covered with dry flannels or oiled-silk, make one of the neatest and best applications that can be made to the chest in pneumonia or catarrhal bronchitis.

In treating pneumonia in children, L. Emmet Holt¹ says he has little faith in drugs, and summarizes the treatment which he would recommend in these words: "Nourishment, opium, alcohol, local applications."

After tonsillitis has continued until abscess is almost certain, Morell Mackenzie² advises the persistent application of warm poultices to the neck to encourage suppura-

¹ Medical Record, February 14, 1885.

² Pharynx, Larynx, and Trachea, page 44.

tion. I am satisfied that the persistent application of hot fomentations—preferably flannels wrung from simple hot water—from the start, may hasten resolution and prevent abscess.

In entero-collitis, gastro-enteritis, and the various inflammatory affections of the abdominal organs, heat is always indicated; and there is no doubt that in these applications, properly applied, the physician has a more potent, reliable, and easily controllable agent, than in any remedy, or class of remedies which may be administered *per os*.

Winckel¹ says that permanent baths are indicated for those *children who are extremely feeble between twenty-three and thirty-six weeks of age*, and with those who are in a state of profound *asphyxia* in consequence of hemorrhage from the cord after *accouchement*.

He had a bath especially constructed in which a child could be comfortably kept, constantly, for several days in succession in water at a temperature of 97° to 100° Fahr.

Henry N. Read,² Assistant Physician Long Island College Hospital, in speaking of ephemeral high temperature in young children, after quoting Bouchut, who says in his work on *Diseases of Children*, "In the first stage of childhood there is no relation between the intensity of the symptoms, and the extent of the material lesions"—writes, "that the most intense fever, restlessness and spasmodic movements, etc., may disappear in twenty-four hours, leaving no traces. The pulse and respiration may become extremely rapid, and the temperature run up to 105° or more." In these cases we can only explain the phenomena, as Dr. Read does, by the insufficient regulating power of the nervous system. The nervous system no doubt plays an important part in the the regulation of the body heat, although its action and exact influence is illy understood. In these cases I should put great faith in the sedative action of the tepid or warm bath. Dr. Read recommends the administration of

¹ Rev. Mens. des Mal. de l'Enf., abstract in Archiv. of Pediatrics.

² N. Y. Med. Journal, July 19, 1884.

chloral hydrate; Da Costa and Wilson, of Philadelphia, speak well of the same treatment.

Poultices.—Some of the applications already spoken of might come under this head; in fact, there is no better application where simple heat and moisture are desired, than the flannels wrung from hot water and covered with dry flannel or oiled-silk. Spongio-piline may be used in place of the flannel, or a layer of cotton batting covered with oiled silk makes a light and neat poultice, which may be left in place for several days. If it be desirable to produce a little cutaneous irritation in the case of children, a spice-poultice makes a light and convenient poultice. It is well to mix the white of an egg and a little glycerine with the spices to prevent them from becoming dry too soon. I prefer in most cases an ordinary flaxseed meal poultice to which a little mustard has been added. If it be desirable to keep the poultice moist as long as possible, a little glycerine may be mixed with it. The physician should always, either give minute instructions in regard to making and applying any poultice ordered—or better, see to it himself—as a poultice unless properly made and applied, may do more harm than good.

A hop poultice is popular, but probably owes its good effects simply to the heat and moisture. If the chest be covered with flannel and oiled silk in every case of measles, many lung complications might be avoided, says J. Lewis Smith.¹

Poultices should not be continued too long; for if kept too long in contact with a large surface, they depress the vigor of the system, and lower the tone, so that recovery may be prolonged. They, also, if kept in place too long, cause little abscesses which are very irritating.

Inunctions.—Inunctions of fat are useful in most fevers, especially in scarlet fever to relieve the dry condition of the skin. Cocoa butter is the best, perhaps, but lard or olive oil may be used.

¹ Diseases of Children.

Colbat¹ advocates the use of inunctions of lard, or vaseline, not only in scarlatina, but in variola, pneumonia, etc. His experience has been that the inunction is always followed by a period of calm and repose; and with a reduction of the body temperature from one-half to two degrees.

I shall not speak of the various medicinal agents that may be put into the circulation by means of inunction, such as mercurials, cod-liver oil, etc. Neither have I spoken of the medicinal agents that may be absorbed from baths or vapors.

I will mention one means, however, which is very little used, and which is of great benefit in treating weakly children, who are sallow, and have pasty, whitish stools; and that is by general baths with a solution of nitro-muriatic acid—one ounce to gallon.

Counter-irritants.—In speaking of mustard, etc., in poultices, I have already mentioned some forms of counter-irritation. There are a few others that the physician who is called upon to treat children should bear in mind.

H. C. Wood² strongly recommends the oil of amber as being especially valuable as a counter-irritant in the treatment of the *bronchitis* of young children, associated, as it often is, with marked nervous disturbance and tendency to collapse. The oil, diluted with from one to three parts of sweet oil, and applied to the chest as a sort of stupe, sometimes acts very happily in allaying nervousness as well as internal congestion.

For pertussis, among the thousand and one remedies, John M. Keating³ speaks well of counter-irritation as an important measure, and mentions croton oil, oil of amber, and oil of cloves, which may be mixed with olive oil, and rubbed on the chest three times a day, and the surface afterward covered with oiled-silk. J. Lewis Smith also advises mild counter-irritation in pertussis. The same authority advises counter-irritation along the

¹ Rev. Mens. des Mal. de l'Enf., March, 1884. Archiv. Ped., April, 1884.

² Therapeutic Gazette.

³ Med. News, February 28, 1885.

spine and nucha, after discontinuance of ice-bags in cerebro-spinal meningitis.

Dr. Faulkner,¹ of Pittsburg, advises as an efficient means of treatment in many cases of asthma, counter-irritation over both pneumogastrics with Churchill's tincture of iodine.

In tetanus infantum, Dr. Merriwether,² of Alabama, says, if there is no improvement from the medicine which he orders, he applies a blister, larger than a dollar, to the umbilicus, and with this treatment the child generally improves. Warm foot-baths and stimulating embrocations along the spine are proper adjuvants to the treatment. Trousseau sometimes used blisters to the legs in scarlatinal dropsy with good effect in conjunction with hydrogogue cathartics. Blisters are very seldom required in treating children, especially in the case of young or weakly children, they should be used with extreme caution.

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Fournier. *Medico-Legal Investigation with Reference to the Transmission of Syphilis from an Infant to its Nurse.* (*Arch. f. Kinderh.*, [from *Gaz. des hôp.*, Nos. 67, 72, 75, 1885,] Bd. vii., H. 3).

This subject is very fully discussed by this well-known author in three lectures which were delivered to his regular class, being the embodiment of many years of valuable experience. The first portion of the investigation appertains to the nurse and is considered under five heads.

(1.) A question simply as to diagnosis—that is whether the nurse is really affected with syphilis, or is not.

(2.) Whether the syphilis arises from a chancre upon the breast of the nurse, which is ascertained by an exam-

¹ Med. Record, January 24, 1885.

² Quoted in Smith's Dis. of Children.

ination of the breast and axilla. Three conditions may obtain: (a) the chancre may be in full development; (b) it may have healed, but have left certain marks of its existence; (c) or it may have healed and left no marks. If either of the first two conditions obtain, the phenomena must be precisely described; with the third it is only necessary to say that there were no evidences of chancre.

(3.) Whether the syphilis arose solely from a chancre of the breast; that is, every portion of the body which could be the seat of a chancre must be examined, and if nothing is found except upon the breast, the fact should be stated.

(4.) Whether the chronological order between the time during which the child was nursed, and that at which the disease appeared upon the nurse's breast, was observed. The period of incubation for the primary lesion should be estimated at fifteen to forty days, and that for the secondary phenomena at forty to forty-five days, so that the minimum for the occurrence of the latter should be fifteen to forty days from the time of infection.

(5.) Whether the nurse was quite free from syphilis when she began to nurse the child. This may involve not only an examination of the woman herself, but of her husband and children if she has them.

The second portion of the investigation concerns the infant, if it is alive, and it should be learned, (1) whether it actually has syphilis, by proper examination and historical data obtained from the parents; and (2) whether the syphilis is hereditary or acquired. In the former case if the child *has* hereditary syphilis, and the nurse clearly has it, as well; proceeding from the primary lesion upon the breast, the evidence is quite conclusive that the nurse's disease has been contracted from the child. If, on the other hand, the child has syphilis which has proceeded from a chancre, the condition becomes a more difficult one to give an opinion upon, for in such a case it is not always clear that the nurse received infection from the child. The consideration of the second point, that is, whether the syphilis of the child is hereditary or acquired is, of course, a question of differential diagnosis. Points which will be of assistance in making such a diagnosis are: (1) In acquired syphilis there must either be manifest a chancre as an initial symptom, or some evidence that there has been one. In hereditary syphilis this evidence is, of course, wanting. Of course it is possible that there may have been a

chancre with swollen glands, and that after a number of months all evidences of it may have disappeared, but this is not usual. (2) The development of the symptoms is quite different in hereditary syphilis from what it is in the acquired form. If the general phenomena of syphilis occur within the first seven or eight weeks of life, it is almost certain to be the hereditary form, for the phenomena of acquired syphilis should not be manifested before the end of the second month of life. (3) Hereditary syphilis in very young infants is also distinguished by its great mortality, while the acquired form is usually quite well endured. Therefore the prognosis is much better in the latter than in the former, the entire course of the disease being also milder in the latter. These three points will be found to be of great assistance in making a differential diagnosis. A. F. C.

Treatment of Whooping-Cough. (*L'Union Méd. du Can.*, [from *Bull. de Thérapeutique*], May, 1886).

Michael agrees with Hack in his opinion that whooping-cough is a reflex neurosis which originates in the nerves of the nose. He therefore believes in treating it by means of powders applied to the nasal mucous membrane, and tested his belief by the treatment of fifty different cases. The substances which he used in these cases were quinine, either pure or mixed with benzoic acid in the proportion of one of the former to three of the latter, tannin, boric acid, salicylic acid, iodoform, cocaine, bicarbonate of soda, and marble dust. The last mentioned substance was used in order to study the action of inert powders. Favorable results were obtained from its use in certain cases, which showed the curative influence which a substance may have merely by its mechanical action. The most effective substances which were tried were quinine, benzoic acid, tannin, and marble dust; cocaine, boric acid, iodoform, and salicylic acid making very little impression upon the cough. They were used only during the spasmodic period of the disease. Of the fifty cases which were treated, all the symptoms of the disease disappeared at the end of three days in eight cases; at the end of eight days in six cases. In six other cases the symptoms were improved but the duration of the disease was not affected. The weather exercised a marked influence upon the intensity of the disease; the cough becoming more painful and more frequent when it was cold and damp, especially if the wind were east. When

the wind died away and the weather became milder, the symptoms improved. It was also observed that dampness had a more unfavorable effect than cold.

Sanerhing, Stetlin, professes to cure whooping-cough in from fifteen to twenty days with quinine. His doses are relatively large. To infants he gives four to seven centigrams at a dose; to children in the second year of life, seven to ten centigrams; in the third and fourth years, ten to fifteen centigrams; in the fifth and sixth, fifteen to twenty centigrams; and in the seventh and eighth, twenty to twenty-five centigrams. The quinine is given with a little sugar, one dose at night and three doses in each of the three following days. Then there is a respite of three days, after which the same number of doses and in the same manner is to be repeated. The same plan is followed after three days more of rest, and by this time, in the author's experience, the cough has disappeared.

H. Roger's treatment, when the paroxysms have a convulsive character, consists in the use of the syrup of valerian in doses of ten to forty grams; or of tincture of musk in doses of five to ten drops for children under two years of age, and ten to twenty drops for those between two and five years. If laryngeal spasms are frequent, he recommends the inhalation of emollient or narcotic vapors, burning in the vicinity of the nose and mouth, nitre paper, stramonium, or belladonna powder. When there are paroxysms of suffocation, he recommends the inhalation of ether or chloroform. If suffocation seems imminent, he recommends the inhalation of ammonia, the free use of cold water upon the face, and active friction upon the walls of the chest, especially in the region of the heart.

A. F. C.

Guerder: Treatment of Whooping-Cough by Nasal Insufflation. (*Jour. de méd de Paris*, June, 1886).

In an extensive epidemic of this disease, in February of this year, which was particularly prevalent among very young children the author treated his cases, at first, by disinfecting the sick rooms with carbolic acid and then using a syrup composed of

Syr. diacodii,	
Syr. belladonnæ, ãã	gr. 50.00;
Acidi phenici,	.50;
Potassii brom.,	4.

This was administered in doses of a coffee spoonful once or several times a day, according to the age of the

patient. Only a moderate degree of success attended this treatment, and when the medicine was suspended the number of paroxysms became as great as before. The continued use of belladonna was also found very undesirable in young children, as it produced decided dilatation of the pupil, delirium, and a condition of narcosis which it was deemed imprudent to continue for long periods of time. The nasal catarrh which accompanied the disease, the injection of the nasal mucous membrane, and the probable parasitic character of the disease suggested the idea that the paroxysms of cough and asthma were of a reflex character, and might be susceptible to a similar course of treatment to that which has been found efficient in hay fever. A powder was therefore made of equal parts of boric acid and burnt coffee, and blown upon the nasal mucous membrane morning and evening. Thirty children were thus treated, seven being under one year of age, seven between one and two, six between two and three, ten between three and eight. Seventeen of these received almost no treatment except the insufflations, while the others had already received some benefit from the use of the syrup, the formula of which has been given. In all the cases benefit began to be apparent in from two to six days, the paroxysms of coughing becoming less frequent and less intense, the vomiting, the epistaxis, and the nasal catarrh diminishing or disappearing. The general condition also improved, and in fifteen or twenty days the patients were apparently well. This result is the more satisfactory since the cases occurred among poor people surrounded by bad hygienic conditions, and the children were out of doors much of the time in cold and wet weather alike. In those cases in which the insufflations were practiced at the beginning of the disease, the course was invariably a mild one, and a cure was effected in eight to fifteen days. Powdered benzoin which was recently recommended by Michael, of Hamburg, for this disease, to be used also by insufflation, gave good success, but not so satisfactory as the mixture of pulverized boric acid and pulverized roasted coffee.

A. F. C.

Adler: Contribution to the Study of the Pathology and Therapeutics of Diphtheritic Paralysis. (*Rev. Mens. des Mal. de l'Enf.*, April, 1886).

This thesis is based upon an analysis of twenty-three cases of diphtheritic paralysis. This accident may occur as a result of pharyngeal diphtheria of all varieties, whether benign or grave in character. It is the result of

specific action of the infectious agent upon the nervous system. Pierrot explains the pathogenesis of this form of paralysis by supposing a concomitant diphtheritic meningitis; but this condition occurred in only three of the cases which were analyzed. Déjerine supposed that the paralysis was due to an anterior poliomyelitis, but this position is not tenable, for the gray matter of the cord in poliomyelitis is not inflamed but is degenerated, and the number of degenerated cells does not correspond with the severe lesions which the peripheral nerves have experienced. The great extent of the lesions of degeneration, as well in the peripheral as in the central nervous system, is explained by the fact that the diphtheritic poison can penetrate, in whatever way, to the nervous system. The peripheral nerves of persons who have died of diphtheria, without having shown any symptom of paralysis, will sometimes show a more or less decided degeneration of the nerve sheaths, or even of the contained nerve fibres. A predisposition to diphtheritic paralysis is sometimes quite noticeable in certain families. There is no particular symptom to announce the beginning of the accident. The velum of the palate is usually attacked first, its loss of power being either total or partial. The accident may last several days or several weeks and is usually terminated by restored function.

Seeligmüller attaches the greatest importance to the treatment by electricity of diphtheritic paralysis. When the velum of the palate is affected, the constant current should be employed; the positive pole being placed upon the nucha, the negative under the inferior maxilla. If the muscles of the eye are paralyzed, the positive pole may be placed upon the nucha and the negative in the vicinity of the paralyzed muscles. If the extremities are affected, the positive electrode should be placed in the lumbar region and the negative over the motor and sensory nerves which are to be excited. A. F. C.

Séjournet: Dentition; its Part in Infantile Pathology. (*L'Union méd. du Can.*, [from *Rev. Mens. des Mal. de l'Enf.*], May, 1886).

According to this author while dentition does not play the important part in the pathology of childhood which is often attributed to it, it is yet not without its influence in that direction, which varies with the individuals, with their age, their constitution, their hygienic, and their hereditary tendencies. In regard to convulsions, for example, numer-

ous instances are cited in which they appeared much less frequently in children who had been nourished at the breast, than in those who had been nourished from the bottle; and, even in the same family, in certain instances children which had been nursed by their mother had no trouble during dentition, while those which were brought up otherwise passed through severe sicknesses. The author also found that children whose parents suffered in any way from nervous diseases were predisposed to convulsions during the period of dentition. Pulmonary disorders, especially in the forms of congestion and catarrh, if not directly influenced by dentition, at least seemed to be excited much more readily during that period, if the body were chilled in the least degree. It may, therefore, be considered that dentition has a certain influence upon a child's health and general nutrition. In three-quarters of the cases analyzed by the author, in which dentition was considered of pathological importance milky urine was passed. Except that the patients were usually in a febrile condition when this urine was passed, no peculiarity about it was observed, aside from its color. The author has been led to consider this as a diagnostic symptom of trouble which is due to a disturbed first dentition. The prognosis of diseases of this character is usually very good.

A. F. C.

Bachem: Whooping-Cough Treated by Insufflation of Quinine. (*Med. Record*, July 3d).

Dr. J. Bachem, Bonn, has treated sixteen cases by blowing into the nostrils a mixture of quinine muriat (3 parts) and pulv. acaciæ (1 part) once or twice daily. Three weeks was the average time of cure.

Transmission of Measles from Place to Place by Healthy Persons. (Editorial).- (*Le Concours Méd.*, June 12, 1886).

The possibility of carrying the contagious principle of measles from place to place by the medium of the bodies of healthy persons was recently discussed by the Medical Society of Berlin, and one gentleman, Joël of Lausanne, presented certain facts which lead to the belief that such a possibility does exist, and that the medium is often furnished by physicians themselves. One case which was cited was that of a boy who was brought from Geneva to Lausanne while he was passing through the incubation stage of measles. The butcher and the postman who served the institution to which the boy was brought, conveyed the disease to their children who were attacked

with it in a short space of time, and, what is quite remarkable, the children in almost every house to which the postman delivered letters were attacked. A little girl was brought to a hospital, and in a few days had undoubted symptoms of measles. Her father had paid her several visits before the measles appeared, and it was ascertained that two of his children were suffering at his home with the disease. Eight other children in the hospital were quickly seized with it. It is thought that physicians cannot always avoid carrying the contagium with them, even when extraordinary care is taken. Prophylactic means, on the part of the physician should be as thorough as possible, however, by disinfection, change of garments, and all other available procedures.

A. F. C.

Epidemic of Scarlatina Caused by the Milk of Diseased Cows. [Editorial.] (*Le Concours Méd.*, June 12, 1886).

An epidemic of scarlatina recently appeared in three districts in London all of which were supplied with milk by the same company. In a fourth district, which was also supplied by the same firm, the disease did not appear. Upon inquiry it was found that the cows belonging to this company were kept in three separate stables. In two of them were three cows which had been recently purchased, and which were evidently sick. The nature of the disease was not known, but upon their udders were vesicles and patches of ulceration. The milk from the two infected stables was all distributed to the three districts in which the scarlatina had appeared. The fourth district was supplied from the third stable in which all the cows were apparently healthy.

Shortly after this the milk from the infected stables was furnished to the inhabitants of a neighboring village, but without the knowledge or consent of the company. Scarlatina also appeared in this village within a few days, though previous to that time no cases were known. At the stables the disease developed among other cows including those which furnished the milk to the district which had not been visited with scarlatina up to that time. The result was the appearance of the disease in this district also. After the sale of this company's milk had been entirely stopped, the disease began to disappear, and no new cases, at least from this source, developed. These facts are important and may have a bearing upon the development of other epidemics.

A. F. C.

Schulte: The After Treatment of Tracheotomized Children. (*Arch. f. Kinderh.*, Bd. vii. H. 3).

Among the elements which act unfavorably, in many cases, upon children who have been tracheotomized are the recurring attacks of dyspnea from plugs and shreds of false membrane. The various methods of relief which are usually tried are the cleansing of the canula with a wet cloth or a feather, the removal of the canula and the substitution of another, and aspiration by means of a catheter. If none of these means are sufficient, but dyspnea continues and collapse and death are imminent, the author's plan is to place the patient as quickly as possible in a small empty wash-tub, causing him to be held in the standing position, and then to pour over the back and breast a gallon or two of cold water, from a height of a few feet above the body. The effect is very positive, the shock from the water excites violent respiratory movements, pieces of false membrane are forced upward into the canula, from which they are removed, and the patient experiences great relief, at once. A. F. C.

Somma: Exposure to the Sun as a Means of Curing Chronic Hydrocephalus in Children. (*Rev. Mens. des Mal. de l'Enf.*, [from *Arch. de Pat. Inf.*, Jan., 1886], Mar., 1886).

This means of treatment has been rarely tried, or even mentioned by writers on pediatrics. Locatelli, of Milan, reports one case which was thus cured, and Nicita of the same city reports three cases. Several of the ancient and early writers expressed the opinion that heat applied to head would effect a cure. The author has treated five cases with the following results.

(1.) *Hydrocephalus Externus*.—Treated with solution of phosphate of lime, vesicants upon the scalp, exposure to the sun for periods of fifteen or twenty minutes. Cured.

(2.) *Hydrocephalus Internus*.—Iodide of potash, solution of phosphate of lime, exposure to the sun. Cured.

(3.) *Hydrocephalus Internus*; also paresis of the lower extremities and pulmonary catarrh. Exposure to the sun, with improvement for five months, finally death from broncho-pneumonia.

(4.) *Hydrocephalus Externus*.—Exposure to the sun. Cure after three months.

(5.) *Hydrocephalus Externus of Syphilitic Origin*.—Iodide of potash and calomel, acid calcium, phosphate and exposure to the sun. Cured.

The following method of exposure to the [sun] was followed:

An attendant held the child with uncovered head, the occiput being turned toward the solar rays, the position being unchanged for half an hour or less. After four or five days the duration of exposure was increased to forty or fifty minutes. Of course this method did not apply during the cold of winter or the excessive heat of summer.

A. F. C.

Musatti: Milk as a Means of Preventing the Renal Albuminuria of Scarlatina. (*Rev. Mens. des Mal. de l'Enf.*, [from *Arch. de Pat. Inf.*, Jan., 1886,] Mar., 1886).

The author has found in his practice that a diet of milk, commenced at the beginning of scarlatina, is the best preventive of renal complications. This is the method, also, which was used with such success by Jaccoud. In the author's experience renal albuminuria never occurred in cases in which this treatment was carried out. His plan is to begin the milk treatment from the very day when the disease begins, without awaiting the presence of albumen in the urine. Milk alone is given as drink, nourishment, and medicine, three quarts per day if possible. The author thinks there are many objections to the cold bath treatment of Léichtenstein, even if it should be found to have merit, which is doubted. He thinks its value must be limited to a few cases, while he claims that the milk treatment is suitable for all cases.

A. F. C.

Filatoff: A New Method of Taking Temperature in Children. (*Arch. f. Kinderh.*, Bd. vii. H. 3).

The difficulties in taking the temperature in children are but too well known, and an important symptom often fails of accuracy of record either because the child offers too much opposition, or because the mother cannot endure the crying of the child for the quarter of an hour during which the thermometer must remain in the axilla, or the five minutes during which it should be kept in the rectum. In cases of this kind the author recommends the use of a warmed thermometer which need be kept only for a moment in the axilla, and with which the fall and not the rise of the column of mercury is to be observed. The result will not vary by more than one or two hundredths of a degree from that which is obtained by the ordinary method. The thermometer may be warmed either by rubbing the bulb in the bare hand, or in a handkerchief, and 42° to 43° C. may be quickly indicated. It should then be quickly placed in

the axilla and allowed to remain one or two minutes. The author has been satisfied with the experience which he has had with this plan up to the present time.

A. F. C.

Comby: Weaning. (*L'Union Méd. du Can.*, [from *Prog. Méd.*], June 1886).

This important process has called forth the most careful thought on the part of such eminent men as Trousseau, Archambault, Jules Simon, and others. If it is done prematurely, suddenly, or at an unseasonable period of the year, one may expect as a result diarrhea, gastro-enteritis, or *cholera infantum*, this result being due to the irritation which is caused to the organs which are accustomed to and adapted to the digestion of human milk. If an acute affection is produced, the symptoms are indigestion, diarrhea, and vomiting, which may come on in repeated attacks and may quickly prove fatal. Acute gastro-enteritis sometimes takes the form of *cholera infantum*. Instead of the acute form there may be a sub-acute or a chronic one, the belly becomes enlarged, the stomach dilated, and rachitis with its well-known phenomena may intervene. In other cases the skin, the mucous membranes, and the lymphatic glands may be involved, and scrofula appear as the result of improper weaning. Two questions are to be considered in connection with this subject: (1) when (*i. e.*, at what age) should weaning take place; (2) how should it be done. Of decided importance also is a consideration as to the time of the year when this may best be accomplished. The summer is the least desirable season for it for reasons which will at once occur. The most favorable is the winter, and then, in turn, the spring and the autumn. As to the proper age for weaning Trousseau made the mistake of laying down the general rule that it should be accomplished when the child had cut his sixteen teeth, whatever might be his age. But if a child has been nursed at the breast he will have his teeth when he is twelve or fifteen months of age; while if he has been nourished in part at the breast and in part by the bottle, the first dentition will not be finished until he is two years, or two and a quarter years of age. As to the disturbances which Trousseau attributed to dentition, or to weaning in the interval between the eruption of two groups of teeth, it is believed that they have been exaggerated. The age of eighteen months is considered as a good average for the period of weaning, modifying cir-

cumstances occasionally requiring an earlier time, but more frequently a later one. Should weaning be attempted earlier than the twelfth month, it will be attended with danger to the child's life, and this attempt is in reality, responsible for the great mortality among infants. When artificial nourishment must be adopted, milk alone should be used, and the author protests against the soups, panadas, and other more or less indigestible substances which are given to infants from four to six months of age under the pretext of preparing them for weaning. He considers that the advice of Trousseau and others upon this point has done great harm.

How are children to be weaned? If the child has reached the age of twenty months the question is easily answered. If he persists in wanting the breast, having already been fed, in part, upon milk, eggs, and other easily digested food, the nipple and the surrounding surface may be smeared with some saline or bitter substance, and this will speedily produce the desired result. Should weaning occur between the ages of twelve and fifteen months the difficulties will be greater, for diarrhea, athrepsia, and rachitis are among the possible results. Milk should still form the basis of the child's diet and this should continue for several months, soft boiled eggs and light gruels being added. When the child must be weaned under the age of twelve months, the greatest care must be taken, mother's milk should be very gradually replaced by cow's milk, or better by asses milk. Should cow's milk be given it must be heated over a water bath, and fed from a cup—not from a spoon or a bottle. Any food excepting milk must be considered positively dangerous for children under the age of twelve months. Meat, vegetables, and other substances which are fit only for strong stomachs must be withheld for months after the breast has been entirely abandoned. Wine, coffee, beer, and cider must also be entirely withheld from young children.

A. F. C.

Landesbere: Etiology, Prophylaxis and Treatment of Blenorrhea Neonatorum. (*N. Y. Medizinische Presse*, Jan., 1886).

This is a contagious disease, due to a particular virus which originates either in the vaginal discharges of the mother, or in the decomposition of animal matter. The former may be leucorrheal, gonorrheal, or even simply catarrhal in character, the plain rule being that the more virulent the vaginal discharge the greater will be

the danger to the infant's eyes. The infection may take place during the act of parturition or at a later period, therefore poisonous discharges from the breast or nipple may act as the cause of the disease. Sponges, towels, unclean fingers, etc., may also produce the same result. Nothing positive is known as to the period of incubation; it varies between three and seven days. If the disease appears within the first week of life, it is fair to conclude that it was contracted either during the act of birth or immediately afterward. When treatment is begun early and is carefully carried out the prognosis is good. Inflammations of the connective tissue of the eye are so common in new-born children that their importance is apt to be overlooked by parents and nurses, and this is especially the case among the humbler classes of society. The prognosis will depend upon the length of time which the disease has lasted, and upon the secondary changes which have occurred to the cornea. Even in its advanced stage three distinct forms can be differentiated. The first takes a mild course, and either heals spontaneously or in spite of improper treatment. The second is more dangerous, especially if the treatment be careless or ineffective, and the power of vision becomes impaired even when the tissues appear to be healing favorably. The third form, the most baneful of all diseases of the eye, is contracted from acute gonorrhea of the mother, and indicates total blindness as a result, from the beginning. In this disease prophylaxis is all important, and the rules which are prescribed are,

(1.) Every pregnant woman who suffers with an abnormal discharge from the vagina must be submitted to such treatment as will relieve her of it before the time of her confinement.

(2.) Examinations of pregnant women should always be made with antiseptic precautions.

(3.) The strictest cleanliness must be carried out to prevent infection whether from the mother or from any other source.

After the child has been born Cr  d  's method should be carried out as a matter of routine, that is, the eyes should be carefully cleansed with lukewarm water and a drop of a two per-cent solution of nitrate of silver instilled into each. If the child is not seen until the disease has manifested itself and there is only a moderate degree of catarrh, after careful cleansing of the lids a four per cent. solution of boric acid may be instilled

several times daily, and the result will usually be good.

In severer degree of inflammation with abundant discharge astringents are indicated, a two per cent. oxide of zinc solution, for example, which may be used morning and evening until the lids are in good condition. If the disease is still further advanced, with much inflammation and purulent discharge, ice-cold applications are indicated and they must be changed very often. If the congestion is great, from six to ten leeches should be applied at the lower border of the nostrils. After the acute stage is passed a two to three per cent. solution of nitrate of silver may be applied to the lids, but this application should be made only by the physician, and with great care, and immediately afterward a weak chloride of sodium solution should be applied, *with a fresh brush*, to neutralize any excess of the silver. This application should not be made oftener than once in twenty-four hours, but in the intervals the discharge may be washed away with a four per cent. solution of boric acid.

This treatment must be continued until the swelling of the lids and the purulent discharge have abated. The danger to the cornea lies less in the corroding effect of the purulent discharge than in the pressure upon it from the swollen lids by which the circulation is seriously interfered with, and gangrene results from want of nourishment. Two surgical means of overcoming the abnormal pressure upon the cornea from swelling of the lids are external canthotomy, and scarification of the connective tissue. Sometimes it will be necessary to do both operations, but if only one is required, it is thought that the former will be serviceable in the largest number of cases. Eserine is used by the author in all those cases in which the inflammation is severe and the cornea is still intact. He instills two drops once or twice a day of a solution which contains five hundredths of a gram of eserine to ten grams of water. The same treatment is used only with greater frequency in cases in which there is extensive infiltration of the cornea. Paracentesis of the cornea is not considered a desirable operation and pressure bandages should seldom be used. An artificial pupil may be made, if the cornea remains cloudy after the disease has been cured, the operation being performed as soon as possible after recovery has taken place.

A. F. C.

2. MEDICINE.

Baginsky: Tetany in Infants. (*Arch. f. Kinderh.*, Bd. vii., H. 5).

The author introduces his paper with the description of fifteen cases of this disease which had come under his observation. They were all between the ages of two and eight months the majority of them being between three and four months. At this age dentition could not be attributed as an etiological factor. The large number of them were seen during the months of June, July, and August, this fact suggesting a relationship with the diseases of the digestive organs which are especially prevalent during the summer. As a matter of fact the majority of them were associated with these diseases.

Underfed, poorly nourished children are especially susceptible to this condition; the muscles of the face, neck, back, abdomen, and extremities being principally involved. It was observed that the cramps usually began in the upper part of the body and extended to the lower, the flexors alone being involved in some cases, in others both the flexors and extensors. The convulsions were bilateral, but the same groups of muscles upon both sides were not always contracted at the same time. They were both tonic and clonic in character, sometimes lasting several days, with occasional relaxation of certain muscles or groups of muscles; in other cases they were very slight, perhaps mere tremblings. The sensorium always remains clear, the children crying almost constantly during the convulsion, and stopping when it relaxed. The skin was cyanotic, and flecked with occasional red spots. In general the disease in these very young children was the same as that which is described in the books as affecting older children and adults; occurring as a secondary affection to other diseases; especially those of the intestinal tract, occurring at intervals of varying length, involving muscles and groups of muscles in succession, especially the flexors, and with a normal sensorium. An important diagnostic point is the position which the hands assume. They are flexed at the carpal joint, being inclined toward the ulnar side. The hand is flexed upon the first phalangeal joint, the thumb is strongly flexed within the palm, but the remaining phalangeal joints are relaxed.

In this disease as in tetanus the slightest excitement will bring on a spasm. As to the cause of the disease

the greatest variety of opinions prevails. By some it is considered simply as a neurosis, by others as an affection of the peripheral ends of the nerves; still others consider it to be due to a lesion of the spinal cord, the medulla, or some other portion of the central nervous system. The author agrees with those who consider it an affection of the peripheral ends of the nerves. It is not a purely reflex disease and the fact that it comes and goes with equal suddenness argues against the existence of a central nervous lesion. In certain cases it may be due to the toxic irritation of the peripheral nerves, especially when it is associated with diseases of the intestinal tract.

The prognosis depends upon the general condition of the patient, it is good when the patient has physical endurance and a good constitution. The treatment should consist in the regulation of the diet, and a proper use of bismuth, nitrate of silver, calomel and opium, castor oil, and intestinal injections. With the latter small quantities of hydrate of chloral will be found of value. Bromide of potassium is not recommended as a means of treatment. Warm baths are useful especially in cases in which there is no fever. In order to prevent recurrence one must insist upon proper diet, change of air, and general hygienic regulations.

A. F. C.

Neumann (Vienna): *Clinical Studies in Congenital Syphilis.* (*Arch. f. Kinderh.*, [from *Med. Jahrbücher d. Ges. d. Aerzte., Wien.*, 1885, ii. iii., H. xi.], Bd. vii. H. 3.

The final result of the author's very extensive experience and observation in this field, is expressed in his affirmation that fixed laws as to the inheritance of syphilis do not exist. With reference to post-conceptional syphilis he had observed, contrary to the experience of other well-known and trustworthy writers, that the child of a mother who had become syphilitic during her pregnancy, could be infected by the mother after birth.

Therefore there is a possibility that post-conceptional syphilis may have no influence upon a fetus, and consequently that the child, in such a case, possesses no immunity against subsequent infection. On the other hand, there are undoubted cases in which the offspring of parents who were healthy at the time of conception, becomes infected by syphilis which the mother acquires after conception, and shows evidences of hereditary disease after birth. Of twenty cases of this so-called post-conceptional syphilis, which were seen by the author, the

children which were born in five of them were syphilitic, in the remaining fifteen they were healthy. It seems to make no difference as to the result upon the offspring, whether the mother becomes syphilitic in the early or in the late portion of her pregnancy.

Another important question concerns the possibility of infection of a healthy mother by a syphilitic father through the medium of the fetus. The author believes that such a possibility does exist, the virus passing from the child to the mother through the placental tissues. If the mother escapes infection, as is sometimes the case, he would explain it by a want of susceptibility on the part of the mother to the disease, just as many persons fail to develop the acute exanthemata though they may be constantly exposed to them. With regard to the particular period of pregnancy during which the mother may be infected by the fetus nothing definite is known. Other important questions which the author discusses are (1) whether the fetus contracts syphilis from the father alone; (2) or from the mother alone; (3) or whether the poison can be communicated by both. The conclusion as to the first question is that a father who is suffering from a recent attack of the disease, begets a diseased child as a rule, though the mother may not be directly infected. The child usually dies in the first months of pregnancy, though sometimes in the later months. If the father's syphilis were latent at the time of conception, an abortion may take place, but the longer he has had the disease the less pronounced will be the effect upon his offspring; after a number of years he may beget children who will be quite free from the disease. Anti-syphilitic treatment to a syphilitic father has a favorable influence upon his offspring. If the father is suffering from the tertiary symptoms or sequels of syphilis, his children will not be syphilitic as a rule. The answer to the second question is that a woman who is suffering from recently acquired syphilis at the time of conception will bring a syphilitic child into the world. The longer the mother has had the disease, and the more efficient her anti-syphilitic treatment has been, the better it will be for her child. Tertiary symptoms may have no influence upon her children. In answer to the third question, if both father and mother are syphilitic, the effect upon the child is, naturally, more pronounced than if only one is thus diseased. An analysis of the cases of eighty-three children is given, in which the fathers or the mothers or both were

sypilitic. Forty-seven of the children had evident symptoms of the disease, either as to the skin, the bones, or the intestines. In nine cases the fetus was macerated when born. In twenty-seven the children at birth were free from the disease.

A. F. C.

Robert: *Scarlatina Sine Exanthemata*. (*Revista de Ciencias Méd.* Jan. 10, 1886).

The author's experience in a number of carefully observed cases revealed the following. The patients which were seen were all between the ages of two and nine years, suggesting the idea that the first and second infancy had something to do with this anomaly as to the exanthema. Fever was present as in the ordinary form of the disease but did not go beyond 39° C. Angina also was manifest in connection with a rapid and febrile pulse. The angina was of a catarrhal, or hyperemic type, however, and was not attended with enlarged tonsils, nor with pultaceous nor diphtheritic deposits. The tongue was red at the commencement of the disease, but there were no decided symptoms during the first few days of any grave internal disorder. The fever was of an intermittent character, of either the single or double quotidian variety. After these phenomena of the first stage of the disease have disappeared a very important sign may be observed, namely, the presence of albumen in the urine. It may not be in large quantity at first, and may require the more delicate tests to discover it, such as picric acid, or the acid nitrate of mercury. Albuminous nephritis whether medullary or cortical, with all its usual symptoms constitutes the second stage of this disease which is called the *white* form of the disease, as the skin is not colored red at any time during its progress. The renal lesion from the first appearance of albumen in the urine. This may happen within a few days of the first symptoms of the disease, or it may be deferred for a longer period as in ordinary scarlatina. If the fever has remitted, it may appear together with the other symptoms of acute parenchymatous nephritis, reaching 40° C. or even a higher point. The urine is usually scanty as to quantity, dense, contains blood, much albumen, many epithelial cells, and epithelial casts. The quantity of urea is diminished, anasarca is quite general, and the serous cavities and especially the peritoneal contain much fluid. In addition there are visceral disorders which are common to uremia, and which vary as the lesions are in

the nervous centers, the retina, the respiratory apparatus, the heart, or the gastro-intestinal tube. These symptoms though serious are not necessarily fatal; but the prognosis is less favorable when they occur in connection with a relapse which has made its appearance fifteen or twenty days after the appearance of the eruption. The treatment should consist of vapor baths, jaborandi, pilocarpin, and opium. The diet should be composed mainly of milk. Acetate of potash and quinine are also most useful for their diuretic and tonic effects. A. F. C.

Schwer: Contribution to the Statistics and Anatomy of Tuberculosis in Childhood. (*Rev. Mens. des Mal. de l'Enf. [Inaug. dissertation]*), April, '86).

The statistics of this thesis include all the cases of tuberculosis which have been treated at the hospital in Kiel for the past twelve years.

Children from birth to the age of five months.

	Number.	Tuberculosis.	Percentage.
Still-born,	94	0	0.
From one day to four weeks	169	0	0.
" five " " nine "	123	1	0.8
" three " " five "	144	15	10.4

This table tends to show that tuberculosis is not an inherited disease, but is always acquired. Exceptional cases have shown, however, that the *bacillus tuberculosis* may be found in the lungs of fetuses. Children between the ages of five months and fifteen years.

	Number.	Tuberculosis.	Percentage.
6 to 12 months,	160	28	17.5
2 years,	188	49	26.
3 "	104	47	45.2
4 "	82	27	32.9
5 "	53	20	37.7
6 to 10 "	112	40	35.7
11 to 15 "	89	28	31.5

This table confirms the statement which is usually found in the text-books, that miliary tuberculosis in childhood is most frequently seen in the early years of life, and becomes relatively rare as puberty is approached.

The course of the disease may be rationally explained when the process is localized in the respiratory, digestive, or genital apparatus. If the meninges are involved, whether primarily or secondarily, the explanation is more difficult. According to Heller's hypothesis the

bacilli penetrate the lymphatics of the nasal mucous membrane and are carried thence to the brain. Bearing upon this point Axel Key and Retzius have demonstrated that the lymphatic spaces of the nasal mucous membrane communicate freely with those of the meninges. Upon this basis the frequency of cerebral tuberculosis, as it occurs among children, can be explained, especially since children in health breathe through the nose. In a series of one hundred and twenty-three autopsies, meningeal tuberculosis was found fifty-three times, tuberculosis of the respiratory organs one hundred and three times, of the intestine sixty-one, of the liver one hundred and four, of the kidneys eighty-three, of the thyroid gland twelve, of the striated muscular tissue twice. Tuberculosis was rarely found as a complication of infectious diseases.

A. F. C.

Sachs: Intra-cerebral Hemorrhage in the Young. (*Med. Record*, July 31).

In a paper read before the American Neurological Society, Dr. Sachs stated his conviction that many cases of this sort were called meningeal hemorrhage. A boy, two and one-half years of age, had typhoid fever, right hemiplegia with aphasia, without coma or convulsions at the time of onset. The onset was slow, aphasia first setting in, paralysis of the arm and leg somewhat later. The recovery was typical of that which takes place in many cases of adult hemiplegia. As regards the differential diagnosis between meningeal and intra-cerebral hemorrhage; in the latter the absence of convulsions seems to be usually significant; in the former they are invariably present. Autopsies upon this condition in the young are very infrequent, but there are reasonable grounds for supposing (see cases recently reported by Osler) that miliary aneurisms in the young do occur, and that fatty degeneration of the cerebral arteries (permitting transudation of blood through the vessel-walls, Recklinghausen) was not an infrequent condition.

Whittaker: Spasm of the Glottis in Rickets. (*Med. Record*, July, 3)

Dr. J. T. Whittaker states that this accident belongs exclusively to rickets and dwelt upon the value of this fact, because treatment addressed to the larynx directly is without effect, while if attention is paid to curing the rickets, the spasm disappears with the cure of the con-

stitutional disease. The importance of this fact is recognized in Germany, where two different authorities state, one that two-thirds and the other that nine-tenths of all cases of spasm of the glottis depend upon rickets. Spasm is often the first sign to unmask rickets, for other evidences of the disease are often attributed to other causes. Spasm of the glottis indicates the stage rather than the degree of rickets, and it does not appear in cases of slow progress. With regard to the cause he thinks that faults in diet cannot have any effect, because in some places, notwithstanding improper feeding and hygiene, rickets is unknown. He thinks the disease can be accounted for by a mycotic theory. Cod-liver oil and especially phosphorous he looks upon almost as a specific.

Jaffrey: Infantile Atrophy of the Extremities. (*Med. Record* [*L'Union Médicale*, May 1], July 10).

Mr. Jaffrey reports two cases. A girl had been in good health up to the age of five years, when she was attacked with scarlatina. Seven or eight months afterward it was noticed that she did not walk very well, one foot being in a condition of equino-varus; tenotomy was performed and an apparatus applied. Later a more careful examination showed paralysis of foot and toes, the parts being cyanotic and cold. This condition took place within a year. The paralysis did not effect any other muscles until five years had elapsed, when those of the fingers and hand and the lower extremity were attacked.

Faradic and galvanic reaction disappeared. Heredity appears to be a cause, as out of thirty reported cases twenty-five were observed in members of one family.

Weeks: Ophthalmia Neonatorum. (*Med. Record*, July 24).

Dr. J. E. Weeks presents a very satisfactory article upon this disease. The importance of this subject is denoted when it is stated that there is not any one disease more productive of blindness than this.

He classifies the diseases under two causes: that produced by gonococci and that by causes as yet unrecognized.

That gonococci are the cause in far the greater number of cases has been proved by many independent observers. The prophylactic treatment consists in douching the vagina at intervals during the first stage of labor with a one per cent. solution of carbolic acid, and in washing the eyes of the infant with the same solution. Boracic

acid (1-60) has been used as a douche, and the eyes thoroughly cleansed soon after birth. One drop of a two per cent. solution of nitrate of silver put in the eyes soon after birth has been effectual in one hospital in reducing the percentage of cases from 7.8 to 0.31.

The foundation of the treatment lies in the use of an effective germicide. The author mentions a number that have been tried and found successful. A temperature of 112° F. will prevent the development of the specific cocci; likewise a temperature of 90°-92° F. Nitrate of silver in solution (two per cent.) and the solid or mitigated stick in severe cases seems to be the generally successful practice.

The duration of the disease depends upon the extent to which the cocci have penetrated the tissues of the lids. After they have penetrated the epithelium and entered the lymph channels, they cannot be destroyed by a simple application to the surface of the conjunctiva; hence the necessity of employing some agency that will prevent their development, and at the same time will not interfere with the action of the tissues in their attempts to expel them.

Partridge: Intra-Cranial Hemorrhage in the New-born. (*Amer. Jour. Obstet.*, May).

Dr. Partridge related the histories and autopsies of two cases. The first case was a female child born without assistance, after a labor of an hour and a half. The child weighed six pounds, ten ounces. The day following birth it was restless, and during the night it moaned incessantly for several hours. There were not any convulsions or rolling of the eyes; it refused to nurse, frothed at the mouth, but did not vomit. The second day it appeared to be sleeping, eyes closed, eyeballs motionless, pupils not responsive to light, symmetrical and moderately dilated; surface not cold, rectal temperature 96° F. Fontanelles bulged to such an extent that the bony margins could not be felt. The thumbs were flexed upon the palms. Death in five hours. Autopsy: Under the dura mater over the entire left hemisphere of the brain there had been hemorrhage. The only cause was a mental shock that the mother received twenty days before delivery. As after this the fetal movements became less vigorous. The second case was a forceps delivery of a male child; the forceps having been used on account of delivery being interfered with by the cord twice encir-

cling the neck. The child was asphyxiated, but was easily resuscitated; weighed eight pounds, twelve ounces. The fontanelles were bulging. It vomited the first day; had epistaxis, was very restless, and cried out with a sharp cry. On the second day he began to move his hands up to and across his face automatically. He nursed up to the third day, never vigorously, but swallowed whatever was put to his lips after refusing to nurse until seized with tonic convulsions. All the symptoms of brain pressure showed themselves; oscillating eyeballs, contracted, non-responsive pupils, shallow respirations, general convulsions, opisthotonos, etc. Death on fifth day. Autopsy: Beneath the tentorium cerebelli there were four ounces of dark disintegrated semi-fluid blood; in the right lobe of the cerebellum an almond-sized cavity filled with semi-fluid blood; cerebellum was softer than the cerebrum.

Tyler: Hodgkin's Disease in a Child. (*Amer. Jour. Obstet.*, July).

Dr. L. Tyler reports the case. A girl, aged eleven years, complained of sore throat and malaise; pharynx was congested and the left tonsil enlarged and inflamed, the right less so; the sub-axillary glands on the left side were enlarged. The glands on the left side of the neck and axilla soon became enlarged. The spleen was somewhat enlarged. A scarlet rash covered the back. The thermometer showed a slightly abnormal temperature.

She was anemic, blood showed an abnormally large number of white corpuscles; urine normal. She was put upon Fowler's solution and iron. She improved rapidly. The rash disappeared and the white blood corpuscles diminished rapidly in number.

In the discussion upon this paper several gentlemen expressed the opinion that the case was not one of the disease in question, but tuberculosis or scrofula.

Eliot: General Psoriasis and Psoriasis Plantaris et Palmaris. (*Med. Record*, July 3).

A female child, thirteen months old, previously in good health, became, apparently without cause, peevish and restless. A few days afterward there appeared upon the forehead an eruption consisting of erythematous papules. These grew larger, slowly becoming covered with thin whitish-brown, easily removable squama. The same condition appeared upon the extremities but

not upon the trunk. The child, when allowed, constantly scratched the eruptions. The parents never had any skin disease, and two previous living children were healthy.

On the palms of the hands and feet the eruption was scanty and never presented any squama. Under small doses of arsenic and cod-liver oil and the application of hydrarg. ammonia she rapidly improved. At the end of two months all the lesions had disappeared and her general condition had so much improved that she began to walk.

Droixhe: Leucemia. (*El Progreso ginecologico y Pediatra*, March 22, 1886.)

This disease always assumes a severe form and is associated with a dyscrasia of some character—whether syphilis, scrofula, tuberculosis, or rachitis. It is the result of hyperplasia of the hematopoietic organs, and consists, essentially, in an increase in the number of white blood corpuscles, and a diminution of the red. It affects the lymphoid organs, namely, the spleen, the lymphatic glands, and the medulla of the bones; and consequently has three varieties, splenic, lymphatic, and medullary. It is most frequently present between the ages of four and five years; in boys rather than in girls. It may come on very insiduously, the patients being anemic, and showing lassitude and dullness. Epistaxis and gastro-intestinal disturbances are not infrequent, and when the spleen has become hypertrophied there is pain in the left hypochondriac region. With these symptoms are associated vertigo, pain in the head, and darting pains in the limbs. The spleen may become so much enlarged as to interfere with the respiration and the circulation. At the same time the liver may also be enlarged, and the abdomen be greatly distended. Likewise the tonsils, the follicles of the pharynx, and the peritoneal glands may be enlarged, and bronchial adenopathy may also exist. As the disease progresses there will be fever of a remittent type, which will have evening exacerbations with night sweating. The change in the condition of the blood may give rise to symptoms of the hemorrhagic diathesis, there will be serous deposits in the cellular tissue and a general dropsical condition. There may also be discharges of blood with the urine or feces. Parenchymatous nephritis may complicate the condition. If the disease has not made decided progress, and there

are no complications, a cure is possible. The prognosis is always unfavorable when there is pronounced emaciation, if hemorrhages are abundant, if dropsical effusion has taken place, and if the organs involved have undergone decided hyperplasia. The treatment of this disease is mainly dietetic, and should consist of food which is rich in albuminoids and in phosphorated matter. A plentiful supply of pure air should be respired, and one should live as much as possible in the sunlight. Saline baths will be useful, also rubbing, manipulation, douching, and faradization. Bitter tonics with arsenic will be found useful, also various ferruginous preparations. Quinine and eucalyptus are especially indicated, and may enable one to overcome the hemorrhagic diathesis and the splenic enlargement. In the medullary form of the disease, especially if it is in connection with rachitis, the preparations of phosphorous (phosphates of lime, soda, and potassium) are very efficient. Both the hygienic and the medicinal treatment must be continued patiently for months. A slight improvement does not mean a cure.

A. F. C.

Bernhardt: Infantile Spastic Hemiplegia in Childhood, with Remarks upon Aphasia During the Same Period. (*Gaz. Med. di Roma* [from *Riv. Clin. di Bologna*], June, '86.)

The author's experience includes a series of eighteen cases, all of which, with one exception, were under twelve years of age. In some of the cases the cause could not be satisfactorily ascertained. In others a relation was traced to a precedent infective disease. No febrile process was observed. In some of the cases the first phenomena were unilateral convulsions with complete loss of consciousness. Without prodromal symptoms, which were especially noticeable, the hemiplegia came on after a spasm which was usually upon the right side. It was sometimes complete and sometimes incomplete, and involved more decidedly the upper extremities. The power of speech failed but began to return gradually after a week or ten days, the hearing was not affected. In some instances complete power of speech was not recovered; in others there was a second attack of aphasia. Still other cases were accompanied by loss of speech. The following facts are given as the result of the author's observation as well as that of others.

1. A true aphasia occurs, not infrequently, among children.

2. The etiology of this condition may be the same as

in adults, but it may also appear as a reflex from indigestion, entozoa, psychical excitement, and especially as a consequent of infectious diseases.

3. The acute and chronic cerebral affections which produce aphasia in the adult are also liable to have this effect in the child.

4. This form of aphasia is rarely permanent, but constitutes a portion of the symptomatology of infantile cerebral paralysis.

5. Should it be permanent, judicious training may compensate for some of its evil consequences.

6. In the period of childhood is also sometimes seen the variety of aphasia which is known as atactic or motor, also agraphia, alexia, and even total amnesia.

7. The nature of the lesions in congenital aphasia has not yet been demonstrated. Those children who have remained aphasic have become idiotic. In the progress of the disease (hemiplegia) there may be attacks of vertigo, and well marked epileptic convulsions. There may be a distinct condition of ataxia or athetosis.* The power of all the senses remains intact, and also the sensibility to both electrical currents. The patellar tendon reflex is not changed to any great extent. In some cases a decided arrest of development is observed in the hemiparetic limbs. Whatever the morbid process in the affected cerebral hemisphere may be, it evidently is one which leads to atrophy of all the elements of which the hemisphere is composed. In differentiating this disease from the infantile spinal paralysis, points which are to be observed are the unilateral convulsions with which it is frequently instituted, and the existence of unilateral paralysis with participation of the facial nerve upon the affected side. The treatment should be antiphlogistic with the use of the galvanic current and the bromide of sodium.

A. F. C.

Phillips: On the Identity of Membranous Croup and Diphtheria. (*Brit. Med. Jour.*, June 5, 1886.)

While the author believes in the etiological identity of membranous croup and diphtheria, he also believes that membranous laryngitis may present two very different clinical pictures, one of which will be called croup and the other diphtheria. The former will be an infectious disease of childhood, appearing suddenly at night, without any glandular inflammations, and with laryngeal breathing and false membrane in the larynx; while the

other will be an infectious disease with false membrane on the throat and larynx, often with enlarged lymphatic glands, with albuminous urine and paralytic sequelæ. The experience of the author as detailed in two of his cases is interesting. In the first, a child had membranous croup with very pronounced symptoms. The dyspnea became so urgent that tracheotomy was performed with immediate relief, and with discharge by coughing of several pieces of membrane through the tube, though the child died subsequently from asthenia. A few hours after the operation had been performed, the same instruments, which the author admits had not been made perfectly aseptic, were used in performing an operation for congenital phimosis on a child eighteen months of age. Four days later false membrane appeared upon the wound of the prepuce which, by the following day, had extended over the glans, and was accompanied with much edema of the penis and retention of urine. The membrane was removed as it reformed during the next two days, the underlying tissue being dressed either with iodoform or a mixture of ten grains of perchloride of mercury to the ounce of glycerine. The sequence of events here was membranous croup appearing suddenly, a course which resembled that of diphtheria, and inoculation and diphtheria of a wound after an incubative period of three and a half days.

Carron de la Carrière: On the Existence of Lobar Pneumonia in Very Young Children. (*Rev. Mens. des Mal. de l'Enf*, March, 1886)

The question is raised whether broncho-pneumonia, which is so common in the early periods of life, has not drawn away attention from lobar pneumonia, as well from the pathological anatomy standpoint as from the clinical. To show the changed views regarding this disease, a few years ago the generally received opinion was that pneumonia in early life was usually of the lobar form; now, with many authors, every inflammation of the pulmonary parenchyma which occurs in a child under two years of age is considered *a priori*, as broncho-pneumonic. Some well-known French writers are still of the opinion, however, that lobar pneumonia in early childhood does exist, and among them may be mentioned J. Simon, Descroizilles, Rilliet and Barthez, and Picot. The author in his inaugural thesis has related several cases of croupous lobar pneumonia which came under his observation, the children being all under the age of

two years. Cases of this character usually continue for seven days. Neither the mode by which the disease begins nor the physical examination of the chest can serve to differentiate broncho-pneumonia, at this early period, from pneumonia, but the thermometric curve affords a certain means for making a diagnosis. Jurgensen has shown by the analysis of a large number of cases, that in two-thirds of all cases the fever declines between the fifth and seventh days, and that in seven times out of eight it is by crisis and not by lysis. Therefore the author concludes that every acute pulmonary affection which comes on suddenly, lasts seven days, and then suddenly ends, is a simple pneumonia. A. F. C.

D'Heilly and Thoinot: Specificity and Inoculability of Varicella. (*Rev. Mens. des Mal. de l'Enf.*, Dec., 1885).

The conclusions of this paper are as follows:

1. Varicella is inoculable but not always to the extreme degree which has been indicated by Steiner. Its prodromes may be entirely wanting. The inoculated varicella may begin suddenly.

2. Variola does not confer immunity from varicella; nor does varicella give immunity from variola. They may succeed one another almost immediately, one appearing while traces of the other still remain. The incubation period of both may occur at the same time, and also inoculation for both may be practiced at the same time. It is not impossible nor improbable that from such a procedure one could secure immunity from both diseases.

3. The authors failed of success in their attempts to inoculate varicella upon children who were suffering from acute variola or varioloïde.

These conclusions confirm the dualist doctrine that varicella is a distinct disease which has no relations with either variola or varioloid. A. F. C.

Cséri: The Micrococcus of Vulvo-Vaginitis in Children. (*Rev. Mens. des Mal. de l'Enf.* [from *Pester Med. Chir. Presse*, 1885, No. 11], Jan., 1886).

This paper presented accounts of twenty-six girls, between the ages of three and ten years, who were under treatment for various chronic affections, and who also showed evidences of vulvo-vaginitis during their stay in the hospital at Pesth under the author's care. In all of them he found in the vaginal secretion a micro-organism which presented the same morphological characteristics as Neisser's gonococcus, and he believed that this gono-

coccus was the same as that which is characteristic of blenorrhea, holding in this respect a contrary opinion to that of Fränkel. He believed that the entire series of cases of chronic vulvo-vaginitis had an infectious origin, though the source of the infection in these cases was difficult to demonstrate. Up to the present time the micrococci of infectious vulvo-vaginitis have not been cultivated with success, though the pus from this disease when applied to the conjunctiva will produce an intense conjunctivitis. The transmission of the disease among children in hospitals is made by the medium of the linen, the water-closets, the baths, the toilet articles, and also, at times, by the hospital attendants. A. F. C.

3. SURGERY.

Owen: Injury to the Epiphyses in Young Subjects. (*Medical Times*, November).

This is the text of a clinical lecture delivered in St. Mary's Hospital. Attention was called to the importance of these injuries about the elbow and the frequency with which they were overlooked, in a recent lecture by Jonathan Hutchinson. Substantially the same ground is gone over in the article under consideration, but more fully.

Slight injuries may suffice to "ungles" the epiphysis. This should always be borne in mind in examining contusions about joints and the patient should be anesthetized if the case is not perfectly clear. The injury occasionally coexists with fractures of the shaft.

True crepitus, even though the line of fracture be partly through the bone, is rarely to be obtained. Something described as a "mortary" sensation is more common.

The complications which may follow are abscess at the site of fracture with or without joint implications. The epiphysis is sometimes cast off as a sequestrum.

Usually, however, union readily takes and without permanent deformity provided good position of the parts is secured. As a rule the joint should not be confined longer than three weeks.

In excisions care should always be taken to preserve the epiphyseal cartilage, else an arrest in the growth of the limb may take place.

Forrest: Intussusception in Children. (*Amer. Jour. Obstet.*, July.)

Dr. W. E. Forrest writes a very valuable article upon this subject. Its value consisting in definite directions in regard to treatment, which are founded upon clinical facts. The varieties of intussusception, classified according to situation, are: 1. Intussusception confined to the small intestine. 2. Ileo-colic, *i.e.*, the small intestine passing through the ileo-cecal valve into the colon. These two varieties are extremely rare in children under ten years of age, and it is doubtful whether the first ever occurs in small children. 3. Ileo-cecal, *i.e.*, the cecum and ileum pass into the colon, but the ileum does not pass through the valve. This variety forms probably between eighty and ninety per cent. of all the cases occurring in children. 4. Colon intussusception, *i.e.*, the colon invaginates a portion of itself. This variety forms more than eight per cent. in children. From the foregoing it will be seen, and it must be borne in mind as it has a practical bearing upon the treatment, that in nearly every case of this trouble the colon alone forms the outside layer of the tumor, and that the invaginated portion of intestine can be acted upon by pressure from an injection, fluid or aerial, thrown into the colon.

There are three methods of treatment: Forcible injection, spontaneous cure, laparotomy. The method which is called for in each individual case depends upon the age of the patient. This appears to be a very hazardous statement, but the following facts prove the contrary.

In laparotomy upon children under fifteen years of age, where the invagination was difficult or irreducible, the percentage of deaths was one hundred; in cases which probably could have been reduced by other means the recoveries were fifty-seven per cent. Spontaneous cure, that is, sloughing of the invaginated intestine with elimination, takes place in infants with a recovery of two per cent.; in children under five years six per cent., and at both these ages not all that pass the stage of elimination recover; between the sixth and eleventh year twenty-two per cent. recover. The following are the conclusions deduced from the above: At any age a pressure of six pounds to the square inch having failed to reduce the tumor after a lengthened trial, the pressure is to be cautiously raised to seven, eight, and even nine pounds, depending upon the acuteness of the attack and the length of time the invagination has lasted. If this fails (?)

If the child is under two years, open the abdomen and resect the intestine. The child will probably die; if left to nature (spontaneous cure) the case is absolutely hopeless. If the child is between two and five years and injections have failed, the chances of spontaneous cure or laparotomy are about equal, and either course will be justifiable. The invagination cannot probably be reduced even by traction, and the principal object in opening the abdomen is either to resect the intestine or perform enterotomy. If the child is over five years, and the invagination has resisted eight and nine pounds pressure, it must be concluded that the part is irreducible, therefore it must be left to a "spontaneous cure," because there is a greater percentage of cures at this age, by this method, than by laparotomy.

There are two principles upon which the injection can be given, either by manual pressure upon the bulb of a Davidson's syringe, or by the pressure of a column of water, as by a tube attached to a reservoir elevated to the desired height. The Davidson syringe method is very objectionable because the degree of pressure exerted is unknown, cannot be regulated, and is not constant. The diameter of the rectal tube is not great enough to support the relaxed sphincter, nor is there a shoulder large enough to exert sufficient pressure to retain the injection.

The proper nozzle to employ is one made by taking an old-fashioned glass vaginal syringe (one inch in diameter by six in length) with a rounded perforated extremity, removing the piston and inserting a cork with a hole through its centre, through which the rectal tip of a Davidson syringe, or a piece of glass tubing, or a quill, or pipe-stem is firmly thrust, having attached to the end of the tip, which protrudes beyond the cork, an inch from the distal extremity of the glass nozzle, an inch-wide roller bandage is wound over the tube upon itself so as to make a shoulder an inch wide. A receptacle for water is now attached to the end of the rubber tubing, and the apparatus is complete. Every two and one-half feet in height of the reservoir above the delivery tube in the patient's anus represents about one pound pressure to the square inch. A convenient way for obtaining the desired height is to carry the reservoir up the stairway; any increase in height can then be very easily and gradually obtained. The method above mentioned is the one advised.

Another method, but requiring more care and caution,

is to attach to the rubber tubing, instead of a receptacle for water, a syphon containing an aerated water, as car-bolic acid or vichy, etc. Every cubic inch of water that escapes liberates four cubic inches of gas. Hence the fluid must be allowed to escape in very small quantities and at not too frequent intervals.

If the pressure is desired to be made by the gas without the water, the syphon has only to be inverted, but the quantity allowed to escape at one time must be exceedingly small.

In regard to the degree of pressure that the intestine can bear, the following conclusions have been drawn from experiments upon cadavers. A pressure of eight or nine pounds to the square inch can be given to an infant without rupture of the intestine. The following useful points were at the same time discovered: That position and manipulation, in some cases at least, aid in forcing an injection through the valve; in most cases the valve will allow the passage of the injection before the colon ruptures; the valve is not the only obstacle in the passage of liquids or gas from the anus to the mouth, but friction in the small intestine is an important factor; if an injection is given with sufficient force to rupture the intestine, the tear will occur in the colon; injections cannot be relied upon to overcome obstructions in the small intestine. How long after an intussusception has occurred will it be proper to use the degree of pressure recommended? If the intussusception has not lasted long enough for sloughing to commence or adhesions to form, *i.e.*, within three days for the former, and five to seven days for the latter, a pressure of six pounds to the square inch could safely be commenced with.

The pressure once begun should not be allowed to be reduced, but should be slowly and steadily increased until the safe limit has been reached. Keep the pressure at this point for an hour, if necessary, in the meantime manipulate the abdomen gently. The patient may be etherized if the obstruction is obstinate. If the injection fails, the other alternatives are to be resorted to as stated previously.

Caldwell: A Case of Umbilical Hernia (Congenital) Extending into the Cord. (*Amer. Jour. Obstet.*, Aug., 1886.)

Dr. C. Caldwell was called to attend and viii with her ninth child. Labor, normal. The child, a female, was observed to have a tumor at the fetal end of the cord. Its greatest circumference was about ten inches; abdomi-

nal opening, *i.e.*, the umbilical, about two inches. The wall of the tumor consisted of the amnion and peritoneum, and was so translucent that the intestine could be distinctly seen when the child cried and forced them out of the abdomen. The umbilical vessels were on the left side of the tumor. The integument extended up on the tumor about one and a half inches.

The child did not show any symptoms referable to the hernia. The tumor was covered with absorbent cotton held in place by a loose bandage. The next day the outer layer of the tumor, the amnion, being black and gangrenous in several places it was decided to operate; an anesthetic was not given. The contents of the tumor were returned to the abdomen and a ligature placed as closely as possible to the abdomen, but not tightened so as to entirely occlude the opening. The tumor was now laid open to see that any loop of intestine had not been caught; a finger was introduced into the abdomen to protect the intestine during the passage of two hare-lip pins at right angles to each other. Two carbolized ligatures were twisted about them in the usual way so as to close the opening. The redundant part was trimmed off and puckered together by a gathering suture, and dressed with iodoform and absorbent cotton.

The child was restless that night but was quiet the following day. The wound was dressed every day. On the sixth day feces was found on the dressing; the next day all the feces was passed through the wound. The opening gradually closed and seventh day after the fistula occurred all the feces passed per rectum. The wound healed readily. The cause of the opening into the intestine was not evident. It does not seem probable that the ligature caught the intestine or that one of the pins perforated the bowel. The only other case recorded is mentioned by Bryant. Dr. Caldwell in treating a similar case would remove the amniotic layer of the tumor wall, if it could be separated from the peritoneum, either by excising or amputating it at its juncture with the integument, would return the viscera and peritoneal covering and close the abdominal opening either by incising the peritoneum, in order better to protect the intestines from needle points, or by stitching the sack to the bottom of the wound and supporting them by adhesive strips extending around the abdomen.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

SEPTEMBER, 1886.

[No. 9.

Original Communications.

CONTRIBUTION TO OUR KNOWLEDGE OF THE
SUMMER DIARRHEA OF INFANTS.

BY J. LEWIS SMITH, M.D.,

Professor of Diseases of Children in Bellevue Hospital Medical College.

[CONTINUED FROM PAGE 455, AUGUST NUMBER.]

The term cholera infantum is often applied to the summer diarrhea of infants both by American and foreign writers, but it is only in exceptional instances, that the symptoms are so severe, and the emaciation and loss of strength so rapid, that such a designation seems to be appropriate. In a large majority of instances the diarrhea is mild, only becoming dangerous from its long continuance and the gradual but progressive loss of flesh and strength. The stools in the common form of the summer diarrhea have an unhealthy appearance, containing undigested particles of the food, especially of casein; they contain mucus, are more watery than in health, and are often green (or they become green on

standing) but the severe symptoms and rapid progress of a choleraic attack are lacking. The employment of the term *cholera infantum* is perhaps useful in alarming the parents and causing greater attention to the condition and wants of the child, but it seems to me, that in medical writings in which we claim scientific exactness, the expression *cholera infantum*, or *choleriform diarrhea*, if employed at all, should be restricted to those exceptional cases—occurring mainly in midsummer when the atmospheric temperature is highest—which are often produced by some exciting cause, usually indigestible food, and in which the stools are not only frequent but so watery that they soak into the diaper almost like urine. They contain little solid matter and apparently consist mainly of the intestinal secretions and transuded serum. In no other disease except Asiatic cholera does such rapid loss of flesh and strength occur as in this form of the summer diarrhea. The choleraic attack often occurs between the daily visits of the physician, and he can scarcely recognize in the pallid, pinched and sunken features of the infant the patient whom he saw twenty-four hours before. This form of the summer complaint unless quickly checked, ends in death with a rapidity which surprises the friends and even the physician. The temperature during its continuance is much higher than in the ordinary diarrhea, rising to 105° , 106° , or even 107° . Sometimes it occurs abruptly in infants, whose previous health has been good, but quite as often the attack is preceded by the ordinary form of diarrhea, and this usually continues after the choleraic symptoms abate.

Whether the symptoms be mild or severe the summer diarrhea is an intestinal catarrh, an enterocolitis some times associated with more or less gastritis, and not infrequently in advanced cases with stomatitis. In ordinary cases, as I have many times observed, the inflammatory lesions consisting of hyperemia and thickening of the mucus membrane are most marked in the ileum, especially in the vicinity of the ileo-cæcal valve, and in the colon, its entire length. In advanced cases attended

by much emaciation small circular-ulcers are not uncommon in the mucous membrane of the colon corresponding in site with the solitary glands, which are detached and thrown off. The belief has long been prevalent in the profession, and it has influenced practice that the liver is largely in fault in the summer diarrhea. In thirty-two fatal cases I carefully examined the liver in order to ascertain if it had undergone any structural change, or if there was any appearance to indicate change of function in this disease. The microscopic examination disclosed nothing abnormal except fatty degeneration in this organ in one case, which probably antedated the intestinal disease. The green color of the stools so commonly present in the summer complaint, received a wrong interpretation through a long series of years. It is not due to any fault in the hepatic secretion, for the green discoloration does not appear in the duodenum and jejunum, unless in the lower part of the latter. It commonly is seen first as we trace the intestine downward in the upper part of the ileum, and it becomes more and more marked as we approach the ileo-cæcal valve. Under the microscope green coloration is seen to be due to little masses or particles of green fecal matter of irregular shape. This color appears to be produced by the action of the intestinal secretions upon the fecal matter or perhaps upon the bile contained in this matter, setting free the *biliverdin*. Of the anatomical changes which occur as complications in advanced cases, the most important are hypostatic pulmonary congestion and pneumonia and passive cerebral congestion and serous transudation constituting the spurious hydrocephalus of the older writers.

The summer diarrhea, as is well known, is much more rare in infants above the age of eighteen months, than in those under this age, and under the same conditions, atmospheric and dietetic, the younger the infant the more severe is it and difficult of cure.

With a clear understanding of the nature of the disease the therapeutic indications are apparent. The atmosphere in which the child lives should be free from noxious

gases and organic matter in which micro-organisms are developed and thrive, and the diet while it is sufficiently nutritious, should be such as is quickly and easily digested. In fulfilling the indication to procure fresh air, physicians need not be informed that the common practice of taking infants in the day time to the parks, into the country, or upon excursions, and returning with them at night-fall, is far less beneficial to them than permanent residence in a well-selected locality in the country; for it is a matter of common observation that the air in the crowded apartments of the city poor is more foul and unwholesome during the night than in the day-time. The amount of organic impurities in the air of a large city would astonish one who has not given particular attention to the subject. The hazy atmosphere, that is seen to rest over a large city when viewed at a distance on a clear summer day, contains not only noxious gases but organic impurities; as has been abundantly shown by examinations made in certain of the large European cities, such as Berlin, the deposit in the streets of dust containing microscopic organisms, entire and fragmentary, is so abundant as to require constant street cleaning. But it is not a matter of indifference to what part of the country infants be taken to obtain pure air, and thus escape the operation of one of the causes of the summer diarrhea. They are very liable to be affected by marsh miasm, especially when reduced by disease, and they should not, therefore, be taken to any locality where this is present. In New York city we have found by experience that it is very necessary to give explicit directions upon this point, for the atmosphere in many fertile and cultivated farming sections in the vicinity of the city is impregnated with the marsh miasm. According to my observations elevated localities in the interior, away from the sea shore, are generally to be preferred for infants with this disease, but in the higher altitudes warmer clothing is required, and more precautions in the out-door life, so as to avoid taking cold, than at lower levels. The increased liability to take cold is due not only to the cooler air, but to the heavy

night dews. In not a few instances, in my practice, families have with inconvenience and pecuniary loss taken their infants to remote localities in the interior, and been highly pleased with the improvement which occurred, until through careless exposures the benefit obtained was more than counterbalanced by the occurrence of serious sickness produced by taking cold. In the endeavor to obtain as much benefit as possible from the pure air of the country, a cold if contracted, is very liable to produce dysentery in place of the simple intestinal catarrh.

Sometimes parents not observing that immediate benefit from removal to the country which they had been led to expect, return to the city after a few days absence. The infant brought back while the weather is still warm, is likely to grow rapidly worse, when a longer stay in the country would probably have been beneficial. A week or more often elapses before any appreciable amelioration of symptoms occurs from residence in the country, in infants that subsequently when they become accustomed to the change, do well. Parents should know this that they do not become too quickly disheartened and return to the city. The late Dr. James Jackson, of Boston, was wont to advise if the infant did not improve in the country that it should not be returned to the city but be taken to another rural locality. If the desired result have occurred by removal to the country, and the diarrhea have ceased, parents often ask at what time they may return to the city. I always strongly object to the return until cool weather, since there is great liability to a relapse, or recurrence of the diarrhea, if the infant be again exposed, while the weather is still warm, to the causes which gave rise to it.

One of the most important duties which devolves upon the physician, especially in city practice, is to direct during the summer months the feeding of infants when the natural aliment fails or becomes insufficient. Young mothers frequently do not appreciate the importance of wet-nursing, do not know how important the breast milk is for the healthy development of their infant, and pro-

pose weaning for slight and insufficient causes. A sore nipple, a retracted nipple, which the infant seizes with difficulty, or a suspected scantiness of milk, or even the belief that lactation will impair their health, or make them prematurely old, is with some mothers regarded as a sufficient cause for weaning, when if they persevered they might in a little time become good wet-nurses. If the physician positively forbid weaning, without the strongest and best motives, if the infant be under the age of ten, and especially of six months, and remain in the city during the hot weather, he will be instrumental in saving many lives. In rare instances, it is true, the breast milk of the mother disagrees with her infant, when there is nothing in her appearance that would lead us to expect such a result. The infant, after nursing, has symptoms of indigestion, vomits, probably has diarrhea, and soon begins to show signs of insufficient nutrition. In such cases, according to microscopic observations which I have made, colostrum is commonly present in the milk, and measures should be employed to improve the mother's health. She probably should be advised to take more out-door exercise, have fewer household cares, more sleep, and a tonic may be required. If her health and her milk do not improve, it is best to employ a wet-nurse, or, if this be impossible, weaning may be proper. We will see, hereafter, that a few grains of pepsin or lacto-peptine will sometimes relieve the indigestion of artificially-fed infants. The same remedy will sometimes relieve the indigestion of the wet-nursed infant, and prevent the vomiting and diarrhea, to which the indigestion gives rise.

The fact that breast milk is greatly superior to any other kind of aliment in the feeding of infants, especially those infants under the age of six months, and in hot weather, those under the age of twelve months should induce the physician to examine carefully as to the cause of indigestion and innutrition and the consequent diarrhea and vomiting, before he advise artificial feeding. The cause may be such that it can be readily removed so that the infant will thrive at the breast. Many inex-

perienced mothers require instruction and a change in the mode of wet-nursing, and the vomiting, and diarrhea to which the indigestion gives rise, may disappear by a more judicious performance of this function. A common error with young mothers who are anxious to have their babies thrive, is too-frequent suckling. They hold their infants almost constantly in their arms and suckle them when they are in the least fretful. The result is bad, both for themselves and their infants, who are usually over-fed; while the mother's health deteriorates from the excessive drain upon the system, and the lack of sleep. An infant over-fed by being applied to the breast during the day-time whenever it frets, and several times at night during the hours which the mother requires for sleep, may vomit the surplus milk; but if it do not its digestion is overtaxed, and a portion of the milk is liable to undergo fermentative changes, and act as an irritant to the intestines, causing diarrhea. The infant may appear well-nourished, but is fretful from flatulence and indigestion. The diarrhea and the symptoms of indigestion cease by suckling at longer intervals. Inexperienced mothers might be saved from much anxiety and their infants from frequent attacks of diarrhea and disordered digestion, if they were instructed in the following simple rule in reference to lactation. The new-born infant until the age of three weeks should be suckled every hour in the day-time, and only once or twice during the hours which the mother requires for sleep. After the third week the intervals between the nursings should be increased, so that at and after the fifth week the infant should not be applied to the breast oftener than every second hour in the day-time, and not more than once during the hours which the mother requires for sleep. It will do far better if suckled not more than ten times in twenty-four hours, than if applied more frequently to the breast. Over-suckling is, of course, only an exceptional and comparatively rare cause of the summer diarrhea. Overfeeding with an artificially-prepared diet, however carefully and wisely selected, is a more common cause. Too-frequent

feeding or over-feeding from the spoon or bottle is in my opinion, a not uncommon cause of disordered digestion, and it should be recognized as a predisposing and sometimes a direct cause of the summer diarrhea. An infant brought up by hand should not be fed oftener than every third or fourth hour, since the food ordinarily employed requires more time for digestion than human milk. But the important and difficult subject remains to be considered, how shall infants deprived of the breast milk be fed that they escape the fatal diarrhea of the summer months, and what shall be their diet when under treatment for this disease.

(TO BE CONCLUDED.)

SURGERY OF THE GENITO-URINARY ORGANS IN CHILDHOOD.

BY DE FOREST WILLARD, M.D., PH.D.

Surgeon to the Presbyterian Hospital, Philadelphia.

[CONTINUED FROM PAGE 395, JULY NUMBER.]

OCCCLUSION OF THE URETHRA.

The meatus is the most common seat of occlusion of the urethra. Discovery of the deformity will be caused by the efforts of the infant to pass water, when unsuccessful straining and distension of the tube will occur.

The thin, blockading membrane is ordinarily easily incised, and subsequent repeated dilatations will complete the cure. Should the interference to the flow of urine be situated further back in the tube it will be associated with some form of hypospadias. Tunneling should be performed with great caution.

ABSENCE OF THE BLADDER.

The bladder is occasionally entirely absent, the ureters opening into the rectum or vagina or at the umbilicus.

When at the latter orifice, a truss might exercise temporary control of the outflow with the hope of making the ureter a reservoir, but such blockade would probably produce changes in the kidney and cause its destruction.

SUPERNUMERARY BLADDERS.

The cases of so-called multiple bladder are usually either sacculations of the original viscus, or divisions separated by a slight partition. No surgical interference is required.

EXSTROPHY OF THE BLADDER.

In exstroversion of the bladder not only is the anterior wall of the viscus absent, but the abdominal parietes, and not infrequently also the pubic bones are wanting. In addition there are ordinarily found a distorted epispadiac penis, inguinal hernia, and absence or non descent of the testes. In the female the malformation, though rare, is occasionally seen. The protruding red posterior vesical wall with its visible ureter orifices, the excoriated surrounding parts and the odor from the ammoniacal urine render the condition of the patient not only disgusting to himself but to all who come in contact with him. Ridiculed in childhood, and shunned in adult life, unable to assume a respectable place in society and sometimes even in doubt as to his proper sex, the sufferer often becomes thoroughly demoralized. Such a condition demands that the surgeon should give his best attention to relief during infancy.

When the deformity of penis and scrotum is very great no rule can be laid down for operation: the surgeon will be guided by the general rules described under epispadias, etc., in July number.

Treatment.—The operations that have been devised for the malformation are all of them but palliative, since a certain amount of incontinence must remain. The advantages gained are a covering for the raw mucous surface, and a small orifice for exit of liquid to which a urinal can be more easily adapted.

The proper time for operation is about the end of the second month of life, when the child is ordinarily in good condition and has not been harassed by teething or other later ills of life, and is well able to endure the shock and loss of blood. Should sickness delay the operation it should be undertaken at the earliest possible moment. If the opening is of moderate size it is best treated by thoroughly paring the entire circumference. Deep incisions on either side of the orifice about three-quarters of an inch from the red borders are then made, after which the two edges are brought in apposition and fixed with hair-lip pins and sutures. The gap on each side will fill in by granulation. An inflated gum ball will not only protect the posterior wall from injury, but also from the effect of hot water used to check bleeding. The flexible skin and loose connective tissue in childhood render this plan of procedure much easier of accomplishment than is possible in later life, although even then it can often be practiced. The approximation must be accurate, any loose points of integument being secured by interrupted carbolized silk sutures. If there is no urethra, a tube should be introduced at the most dependent portion in order to prevent accumulation. Primary union must be favored by thorough aseptic dressings. The best attainable rest must be secured by encircling the body with a six inch roller of adhesive plaster, and straining at stool must be prevented. A supporting finger on either side the wound may prevent tearing during unusual exertion. The limbs should be flexed. The dressing, if properly applied, should not be disturbed until the fourth or fifth day.

In large openings, or where there are other malformations, after the failure of the above plan, the Wood, or Ayres, or Maury, or Smith operation may be necessary. Each of these contemplates the formation of an anterior vesical wall by flaps taken from surrounding tissues. Whether they be selected from above the fissure, from the sides, or from the scrotum, or groins, or labia, will depend largely upon the amount of co-existent deformity.

The integumentary surface is always turned bladderward, lest adhesion of the walls occur. Parker's¹ plan of placing the lower portion of the body in a warm boracic acid bath during the process of healing, while troublesome, yet will add greatly to the chances of successful union.

Attempts have been made to divert the urine from the imperfect bladder and make the rectum perform the functions of a receptacle. This tube, however, rebels against such use by setting up a serious diarrhea which may prove fatal. Such a fistula into rectum or colon can be produced by a thread or by a clamp, but, as above stated, is unsafe as well as unsatisfactory.

Failure by either plan of operation should not deter from renewed efforts, since the result to be sought for is worth numerous trials.

The mechanical means of relief which should follow the operation consists of a close-fitting rubber urinal, which should be adapted as soon as the child is old enough to discard diapers.

ENURESIS OR INCONTINENCE.

Incontinence of urine, especially at night, is so frequently met with in children that the term "wetting the bed" has come almost to indicate a disease rather than a symptom. It is unfortunate that this should continue, since it leads the practitioner as well as the parents to overlook the necessity for a thorough investigation into the cause of this difficulty. This cause, though occult, is certainly present in every case, and no one has a right to accuse the child of negligence until the most patient exploration has failed to elicit any morbid condition. The sooner the ordinary mother comes to understand that the whip is not to be used until after the physician has been consulted, the better will be the bladders of our infantry.

Diurnal incontinence is ordinarily found in girls, but in some boys also of sensitive organization, any mental excitement may produce an involuntary discharge. In

¹ Liverpool Medico-Chirurgical Jour., January, 1882.

either sex the difficulty becomes an unpleasant one, and may even, in later years, become so confirmed as to debar the individual from social intercourse, or interfere materially with daily duties.

The hyper-sensitiveness of the part may also lead to masturbation and later to seminal emissions, especially where no discoverable cause is present, save a brain or spinal cord irritation.

The majority of cases of simple nocturnal incontinence may be traced to reflex causes, such as adherent prepuce, retained smegma, eczema, rectal irritation from constipation, ascavides or polypoid tumors, contracted meatus, polyp of vulva or urethra, vaginitis, calculus, acid urine, etc. Any of these conditions may act as an irritant to the sensory fibres of the genito-urinary branches of the internal pubic, a branch of the sacral plexus, and what follows? The cells of the cord, unable especially in sleep to distinguish between the out-post signals and those received from the bladder itself, send quick response along the efferent motor filaments and contraction of the walls of the viscus is the result, while the sphincter is off guard.

Normal micturition, while apparently a voluntary act, is yet largely reflex, and is greatly influenced by both mental and physical causes.

Traumatic causes are more easily traced. Bruises of the perineum or prostate, injury of the prostate gland or neck of the bladder in lithotomy and blows upon the spine, are all potent. The existence of vesico-vaginal fistula should receive inquiry.

Mechanical causes, such as stricture, etc., are rare in children, save when produced by traumatism. Inflammatory conditions, particularly those associated with calculus, are almost sure to produce enuresis.

In children it is very rare to find the incontinence of overflow from a distended paralyzed bladder which is so common in the aged.

Abdominal percussion and palpation, together with the most rigid examination of genito-urinary and diges-

tive tracts will usually throw light upon the subject, and this search should never be discontinued while the child remains uncured. It should not be forgotten that general malnutrition and hysteria (fertile causes of this difficulty) are themselves dependent upon some other systemic condition which must be corrected.

There are doubtless many cases which we must, in our ignorance, attribute to "idiopathic causes;" but in the future these will be explained.

Recognizing the fact that incontinence is common with other muscular enfeeblements is frequently met with in epileptics, and in feeble minded or in hydro-ciphalic patients we must turn to the spinal cord or brain for an adequate explanation.

Locally, we have, at least, one anatomical explanatory condition, namely, the deficiency of the sphincter of the bladder in infancy as compared with the detrusor muscular power. At two or two and a half years the equilibrium should have been established, but should any want of harmony occur, or should the expulsive muscles continue in a state of exaggerated activity, while the sphincter remains insufficiently innervated, incontinence must result.

During the day sphincter contractility is augmented by will power, but at night, either under the influence of a dream, or from some spinal impulse already noted, in-harmonious action results.

Treatment.—This must necessarily depend upon the cause, and fortunately surgical means are often of great benefit. If the meatus urinarus is contracted it must be dilated or incised. If the prepuce is long, contracted, or adherent, it should be stripped from the glans or removed as described on p. 388, July number, ARCHIVES OF PEDI-ATRICS. Calculus must be gotten rid of by litholapaxy or lithotomy; constipation relieved by laxatives; worms banished by injections of oil or of saline solutions; poly-poid tumors excised; adherent labia separated; acid urine corrected by regulation of diet, the administration of liquor potassa, etc., and an alkaline condition of the same

excretion antagonized by the tonic treatment of mineral acids, with perhaps small doses of benzoic acid.

The child should drink sparingly after five P. M., should, if young, be well bathed and cleanly dressed, smegma washed from behind the corona, and then cheered with the prospect that having passed urine just before being put to bed, there will be no need for any further call until ten or eleven o'clock, when it will be raised without even disturbing its sleep, and the bladder emptied. After this time it should be encouraged to call for the receptacle with the assurance that praise will be accorded in the morning for successful retention. A small cup placed between the limbs of a boy disturbs him far less than the use of an ordinary chamber. Should the mother be awake between three and five A. M., the voidance of the urine can again be secured even in girls without fully rousing them. In large boys or girls, when self pride fails to restrain the outflow, no efforts should be spared to increase their nerve power by tonics, change of scene, diet, bathing, etc. They should sleep on hard mattresses, should learn to rouse easily and to rise at the slightest signal from the bladder. Perfect local cleanliness must be observed, but the parts should not be wiped with a towel unless it be old and soft, and even then moisture is better absorbed by simple pressure rather than by rubbing. In girls it is well to powder the slightly separated labia with acid carbol., gr. v, cocaine mur., gr. iij, zinci oxid, 5ijj, amyli, 5v, or other drying powder. Vaginitis, leucorrhea, etc., must receive careful attention. Boys must be instructed to daily cleanse the glans, and be warned against vicious habits. Every discernable cause must be cured, if possible, before we turn to the *materia medica* for the special drugs that seems to exercise most control over this weakness.

Belladonna has for many years held the first rank, and deservedly so, since either singly or in combination with *chloral*, or the *bromides*, or *morphia*, it certainly possesses much virtue in a large number of cases. From $\frac{1}{18}$ to $\frac{1}{8}$ gr. of a good extract, or from half a drop to two drops of a reliable fluid extract, or from 2 to 30 drops of tincture,

will nearly always be sufficient to, at least diminish the frequency of these accidents and give time for a mental and physical strengthening. When medicine by the mouth is rejected, suppositories seem to be even more efficacious, especially if belladonna is combined with quinine and *ergot*. The other drugs already mentioned are all exceedingly useful if given in small doses. *Iron* and *nux vomica* are particularly indicated where anemia is present, the latter being among the so-called specifics for this malady. Its action, as well as that of *ergot* is probably due to its effect of increasing the tone of the sphincter vesicæ. The full effect of both *belladonna* and *nux vomica* is only reached after a prolonged continuance of their use and the benefit of either often seems to be greatly enhanced by a minute dose of morphia. Our use of belladonna would seem to be largely empirical, since some eminent physiologists and therapeutists believe that its effect is to lessen the exaggerated irritation and action of the detrusor muscles, while other equally reliable reasoners argue that it gives tone to the deficient sphincter. In boys from three to ten the presence of calculus should always be suspected and a sound introduced.

If no cause is discovered, electricity may do good in a general way, one electrode being introduced into the rectum and the other applied to perineal and lumbar regions, or in large boys a catheter electrode may be employed. The current must be so weak that it will not alarm the child and should not be continued over three or four minutes. This treatment is particularly applicable to obstinate cases in large children. Both faradic and galvanic currents have been used with benefit.

I do not favor internal cauterization, Trousseau's compressor, or any mechanical contrivance, not even the sealing with collodion. Serious consequences have followed the encircling of the penis with a cord or clamp to prevent the discharge of urine. The use of caustics is also to be condemned. Rousing the patient frequently at night is certainly beneficial, but during the day-time the bladder should be educated to retain the

urine as long as possible. When obtainable, a hot douche before retiring is of advantage.

As each drug fails renewed efforts must be made to ascertain the exciting cause.

Diurnal incontinence in large boys is the only variety that merits severe reproof or punishment. In girls it not infrequently happens that great difficulty is experienced in securing complete control of the sphincter, even in adult life, although certain epochs, such as puberty and marriage are often beneficial. Vagina, rectum, urethra, and bladder should be thoroughly searched before drugs are employed.

IRRITABLE BLADDER WITH FREQUENT OR PAINFUL MICTURITION.

As in the condition previously described, we find a term in common use which should never be employed to express a disease, but should always be a signal to the surgeon to search with the utmost care for the cause of the difficulty.

To enumerate these causes would be but to repeat what has been said under the article upon incontinence. Suffice to say that the digestive and genito-urinary tracts should receive the most exhaustive attention.

When micturition is frequent or painful, in a male infant, the first attention should be to the prepuce. It will probably be found adherent, and should be loosened as heretofore described.¹ If already freed, it is highly probable that the mother or nurse has neglected to draw it fully back for cleansing, and accumulation of smegma or filth will be found, the removal of which will be followed by prompt disappearance of the symptoms, and the night restlessness will be succeeded by quiet sleep. In larger boys a filthy prepuce is also the most common source of trouble. In girls adhesion of vulva and vaginitis are the chief causes. Stone in the bladder in either sex should be diligently sought for and, of course, removed. Cystitis

¹ ARCHIVES OF PEDIATRICS, July 1886.

is not common in children, but strongly acid or alkaline urine will be present in many cases, and should be corrected by diluents and proper remedies.

Nervous children from eight to fifteen when overtaxed with studies and in weakened condition, are not unfrequently greatly harassed, and in their constant calls for "retiracy" will almost equal the strong but restless boy, who seeks this excuse for escape from duties. The urine of such individuals is usually loaded with phosphates, and the addition of bromides and morphia to their general tonic treatment is frequently necessary.

There is much in habit, of course, and while the difficulty often temporarily follows the too long enforced retention of urine, yet much may be done toward favoring or repressing the frequent calls. Every one knows how natural it is to desire to urinate when passing any place where the act has perhaps been previously once or twice performed. If encouraged, the habit is strengthened, but if the urine is persistently held until actual pain is just commencing the intervals may be greatly lengthened and decided benefit follow. Especially should this be encouraged in excitable girls about the age of puberty.

The urine should receive frequent examinations to be certain that no inflammatory condition is present. Any decided deviation from the normal standard of this fluid may create the irritable condition which will call for a frequent emptying of the viscus. Even the almost pure water that flows in large quantities from hysterical females is productive of irritation, since the mucous membrane is fitted for an acid liquid of greater density. A similar condition is seen in the nasal membrane, accustomed to the saline lachrymal secretion, which is rendered decidedly painful by a douche of plain water, but is soothed by one slightly salted. Again, an excess of uric acid will produce painful micturition, which is promptly relieved by anti-rheumatic or anti-gouty remedies. When these diseases are not present a highly acid urine can often be quickly counteracted by liquor potassa, or bicarbonate of soda associated with infusion of *triticum repens*, *buchu*, *digitalis*, or other diluent.

Very highly alkaline urine should always lead to suspicion of cystitis, nephritis, or calculus. Benzoic acid, used empirically is sometimes of benefit, as is also the washing out of the bladder by very weak injections of hydrastis, cocaine, mercuric chloride, nitrate of silver, plain tea, healthy urine, etc., etc.

Lithia waters and granular effervescent lithia salts are largely used, but I have never found them reliable. All the mild diuretic and purgative waters are employed, and may be useful if not carried to excess.

In feeble nervous girls it must not be at once inferred that the difficulty is psychical; more frequently there is a physical cause. Tumor or fissure of the urethra, vaginitis, or eczema, are potent factors, and their existence should lead to proper operative measures before the undoubtedly necessary tonic treatment is instituted. Dilatation of the urethra is sometimes advantageous, not only in a diagnostic but also in a curative point of view.

I have said enough to show that in nearly all cases of frequent or painful micturition, some surgical interference is necessary as the initial step in treatment. "Nervous cases" do exist, but even these usually have a special cause. Iron, quinine, nux vomica, and belladonna will accomplish far greater results as supplementary measures than as primary means. Suppositories are often more effective than medicines administered by the mouth.

A STUDY OF INFANT FEEDING.¹

BY H. C. HAVEN, M.D., BOSTON.

The importance of the subject of artificial feeding in infancy needs, I am sure, no heralding. It is everywhere made manifest by mortality statistics. The great loss of life during this period is a reproach to preventive medi-

¹ Read before the Section for Clinical Medicine, Pathology, and Hygiene of the Suffolk District Medical Society, May 12th, 1886,

cine. If the mortality due to the improper rearing of infants were the only evil resulting, we might be content to accept it, as in accordance with nature's law of the survival of the fittest, but the evil is much wider spread, and it seems to me comparatively little recognized. The same causes which produce death, acting in a less intense manner, produce a more or less great impairment of the vital force. Just so much as the development is interfered with, must we prejudice, it seems to me, the integrity of the completed mechanism and its harmonious workings. The so-called systems are mutually interdependent, and a fault in one reacts on the other and prejudices its welfare.

During the first two years development is most active and the lack of the conditions which nature shows are requisite for a perfect development must induce an actual lack of development, or some weakness which perhaps first declares itself in adult life. We hear of the differing stamina or vital force of different persons; this is often considered more a matter of heredity than of anything else. It seems to me it is quite as probably, to a great extent, the result of the conditions under which development took place. I believe no one can follow a large number of cases of deviations from health in children without realizing not only how many owe their origin to depraved nutrition in infancy and childhood, but also how strong a factor this is in determining the resistance to diseased processes.

Table A shows the tremendous increase of mortality in the summer months in children under one year of age. This mortality occurs so largely among those receiving artificial feeding, that it [artificial feeding] can almost be considered an essential factor in its causation, and this chart represents simply the mortality from the effects of artificial feeding.

At the West End Dispensary during the last two years 224 cases of diarrhea in infants under one year have been treated; in 24 the disease was a second attack; of the 200 infants only 33 were breast fed, or 16.5 per cent., of this

33 again, in 16 the attack was due to the alteration of the mother's milk, produced by menstruation, and in 10 the diarrhea was a complication of rachitis, pertussis or bronchitis, leaving only 17 out of the 200 who had not artificial food. A close inquiry would much diminish this number, as mothers in the poor classes do not consider it necessary to mention "a taste out of the hand." I have often heard a woman positively assert she gave the child nothing but the breast, and yet on close inquiry find the child had tea, cabbage, pork, etc. I have never seen a severe case of complicated gastro-intestinal disease in an infant nursed by a healthy non-menstruating woman, *i. e.*, a case approaching the choleraic type which is so often met with in artificially fed children.

TABLE A.

TOTAL RANK AVERAGE, 3 DAYS AND OVER: 1 HIGHEST, 20 LOWEST.

Cream Conserve	3.
Breast	4.5
Milk and Cracker	6.2
Milk and Barley 3:1	6.5
Milk	7.5
Anglo-Swiss Condensed Milk 1:10 with cream	7.7
Milk and Barley 2:1	8.
Milk and Barley 1:1	9.2
Milk and Water with Soda Bicarbonate	9.7
Milk and Water with Malted Food, 5 per cent	10.
Milk and Lime Water 3:1	10.5
Nestle's Food	10.5
Milk and Lime Water with sugar	11.
Milk and Lime Water 1:1	11.7
Milk and Lime Water 2:1	12.2
Anglo-Swiss Condensed Milk 1:10	14.2
Cream Mixture (No. 1)	14.2
Peptonized Mixtures	14.7
Cream Mixture (Meigs)	15.5

Every one has a certain potentiality of health and resistance to disease. The gift of healthy ancestry must have a greater amount. The conditions of conception and pre-natal life must have an influence. The extent and manner of development and the conditions under which this development is attained must moreover exert

a great influence on the life history of the being. The extent to which development is interfered with by artificial feeding is a point of which I have made a special study, and to which I wish to call your attention. To settle the matter definitely a series of statistics, large enough to exclude the influences of heredity and of the conditions of conception and pre-natal influences should be compiled, which would cover the life history of an equal number of persons artificially fed and breast fed during infancy, giving their mature development, the resistance to disease of them and their progeny, and so forth. My limited experience leads me to believe that it would be found that the breast fed class would prove themselves superior. I hope eventually to secure statistics on this point.

Books are written and medical journals flooded with articles on the subject of artificial feeding, by men of more or less renown. While the clinical observations contained in these may have great value, few of the writers it seems to me have gone to the root of the matter, or employed sufficiently exact methods to give a scientific value to their statements. Generalizations from a few instances are always hazardous, and in nothing is there more of this loose generalization than in writings on infant feeding.

The ideal infant's food must closely correspond with woman's milk and if we accept nature's dictum, the five following conditions must be complied with:

1st. The food must correspond in its total nutritive value and in the relative proportion of its several constituents, *within the variations allowed by nature.*

2nd. It must contain these different constituents in a form as easy of digestion and assimilation as in breast milk.

3rd. It must have no adventitious constituents.

4th. It must be cheap, as the poor people need it the most. Their infants suffer the most, not only in their mortality being greater, but [the hygienic conditions being poorer] the injurious effects of artificial foods is thus rendered greater.

5th. It must not have been exposed to the possibility of fermentative or putrefactive changes.

I think that for practical purposes its composition should remain the same during the nursing age. [Because 1st. woman's milk shows no sufficient variation, this being within certain narrow limits; and 2d, because as a matter of practice it would be difficult of execution.] *Such a food if constructed must, in common with all other foods, be put to the crucial test of experience, to determine how far other factors than the chemical composition [so far as can be ascertained by analysis], determine the value of breast milk as a food. No food at present meets these conditions.* Personally I do not believe such a food exists: and I do not believe those who claim it can substantiate their assertions. I think most physicians practising among children of the poorer classes must have met with cases, where women were induced to wean their infants prematurely thinking it were better for them to work, and from their wage pay for this "perfect substitute;" the death of the child has been the result.

Such cases have certainly come under my notice in a not extended experience.

I do not think we should be satisfied nor think we have done the most for the future health of the individual to be artificially fed, unless we recognize that the best substitute for mother's milk should be employed even if the other conditions should be most favorable, and that the daily routine of a bottle-fed infant's meals are as worthy of consideration on the part of the physician as are the details of treatment in what furnishes perhaps the best parallel, orthopedic surgery. An impaired digestion is as bad as, if not worse, than a pigeon breast or bow legs.

The following are the analyses of milk upon which I think the most reliance can be placed. They are different from those which are handed down from one text book to another. These are usually the old analysis of Vernois and Becquerel in 1853. Several years ago, before the publication of Leeds, I assumed as my standard of comparison

the average as given by Konig. These analyses of Leeds come very near to Konig's general average.

The basis of food in this country must be cow's milk, in fresh, condensed, or dessicated form. The analyses are those of whole milk. This may vary somewhat in this market (Boston), and with the breed of cows.

All foods in use may be divided into the following classes :

1. Milk with simple dilution with water, and the addition of alkali, cream, and sugar, as the case may be.
2. Milk with malted foods.
3. Milk with starchy substances.
4. Pre-digested foods.
5. Condensed or preserved milks.

Let us consider the theoretical objections to these different classes.

1. Those common to the basis cow's milk.
2. Those pertaining to the use of the adjurant or attenuant, as the case may be, which has been employed for the prevention or the alleviation of some of the objections of the first class.

FIRST CLASS.

(a.) Difference of composition.

(b.) Difference between the albuminoids, coarse coagulation, etc., and possible difference in the fats.

(c.) Difference in ash, this must be an important difference if we accept nature's precepts. (There is not as much known as should be about this. In the analyses I have been able to collect the difference in ash is very striking, and that so little is needed for the bony growth is somewhat surprising. The prominent phenomenon of failure in infant feeding is lack of growth, or waste, and it seems to me significant that the ash, which plays the part of waste promoter, is so large in artificial foods. My personal belief is that the influence of the mineral constituents on nutrition has been far too little recognized, and that it

is one of the strong reasons for the lack of success in artificial feeding.)

(*d.*) Exposure to the air and fermentative changes induced thereby.

In regard to objection *a* (difference in composition), it is modified by the use of all foods, much less by some than by others; mostly by use of foods where the deficiency of fats is recognized, as well as of sugar, as in the different cream foods, and peptonized mixtures as ordinarily used. In the use of milk with malted foods and with starchy foods, and of condensed milk used alone, sufficient allowance is not made for the deficiency of fat, the most important element next to sugar.

Objection *b*. (Difference between the albuminoids, coagulation, etc., and difference in fats). All foods are constructed with a view to meeting in part this objection. Liebig's food was devised to meet it, and the added objection of using starch. The dilution of milk and the use of alkalies are all for the same purpose, and none have accomplished it, except the pre-digested foods (starches, gums, jellies, and all adventitious substances to accomplish the attenuation of the clot, are open to the general objection to the second class—being adventitious constituents). The use of maltrose for that purpose is certainly better than that of starch, with the exception of barley starch.

Objection *c*. (Difference in ash.) No food as used meets this objection, except condensed milk, some of the peptonized mixtures and cream mixtures, so far as the total amount is concerned.

Objection *d*. (Exposure to the air.) No food meets this objection, although dessicated milk foods and condensed milk, up to time of actual preparation for use do to some extent remedy it.

TABLE B.—Records of Nursery Children Only, i.e., in Fair Condition; Food Used for Three Days and Over.

	Gains.	Losses.	Per Cent.	Rank.	Gain Average.	Rank.	Loss Average.	Rank.	Total Average (+ or -).	Rank.	Total Rank Average.
Breast.....	8	3	72	4	25.3	4	17.6	6	+ 6.9	4	4.5
Milk	27	11	71	5	14.8	15	17.5	5	+ 5.4	5	7.5
Milk and Water 1:1 with Bicarbonate of Soda.....	6	6	50	12	7.8	19	7.5	1	+ 0.1	7	9.7
Milk and Water 2:1.....	6	5	55	10	8.6	18	18.	7	- 3.4	14	12.2
Milk and Lime Water 1:1.....	5	7	41	14	23.8	5	29.	13	- 7.	15	11.7
Milk and Lime Water with Sugar.....	7	5	58	8	22.5	7	38.4	16	- 2.8	13	11.
Milk and Lime Water 2:1.....	7	12	36	16	15.7	14	51.3	18	- 26.6	20	17.
Milk and Lime Water 3:1.....	8	2	80	1	16.1	13	67.	19	- 0.5	9	10.5
Milk and Water with Malted Food, 5 per cent.....	24	17	58	8	22.9	6	31.5	15	- 1.2	11	10.
Milk and Barley 1:1	30	26	53	11	18.2	10	21.5	8	- 0.2	8	9.2
Milk and Barley 2:1.....	36	28	56	9	21.5	8	22.5	9	+ 2.2	6	8.
Milk and Barley 3:1.....	14	5	73	3	14.4	16	16.4	4	+ 6.3	3	6.5
Peptonized Mixture.....	7	10	41	14	17.8	11	40.7	17	- 16.5	17	14.7
Anglo-Swiss Condensed Milk 1:10 with Cream.....	3	4	42	13	36.	3	12.1	3	- 1.3	12	7.7
Anglo-Swiss Condensed Milk 1-10.....	5	13	27	17	26.8	1	68.2	20	- 23.5	19	14.2
Cream Mixture (No. 1).....	5	8	38	15	14.8	15	26.1	11	- 10.3	16	14.2
Cream Mixture (Meigs).....	1	3	25	17	10.8	17	25.6	10	- 16.7	18	15.5
Cream Conserve.....	5	3	62	7	27.	2	11.	2	+ 12.7	1	3.
Milk and Cracker (Pap).....	15	4	78	2	20.3	9	27.7	12	+ 10.2	2	6.2
Nestle's Food.....	8	5	66	6	16.8	12	29.2	11	- 0.8	10	10.5

TABLE C.—*All Ages Nursery Department. Seven Days and Over.*

	Gains.	Per Losses.	Per Cent.	Rank.	Gain Average.	Rank.	Loss Average.	Rank.	Total Average (+ or -).	Rank.	Total Rank Average.
Breast	2	1	66.	9	19.5	5	4.25	3	+ 11.6	5	5.5
Breast and Other Foods.....	11	1	90.9	2	18.4	8	2.25	2	+ 16.6	1	3.2
Milk.....	25	8	75.7	6	15.2	11	11.3	7	+ 8.8	6	7.5
Milk and Barley 1:1.....	20	15	57.1	11	16.2	10	24.	13	- 1.	12	11.5
Milk and Barley 2:1.....	25	15	62.5	10	21.7	2	13.3	9	+ 8.6	7	7.
Milk and Lime Water 1:1.....	3	0	100.	1	12.6	12	0.	1	+ 12.6	4	4.5
Milk and Lime Water 1:1 with Sugar.....	4	1	80.	4	18.	9	16.5	10	+ 14.	3	6.5
Milk and Water 1:1.....	5	4	55.5	12	6.4	16	10.5	8	- 1.1	13	12.2
Milk and Water 2:1.....	6	5	54.5	13	8.6	15	18.	11	- 3.4	14	13.2
Milk with Malted Food.....	24	7	77.4	5	18.7	6	27.8	14	+ 8.2	8	8.2
Peptonized Mixtures.....	6	3	66.6	8	19.8	4	31.6	16	+ 2.6	11	9.7
Cream Mixture (No. 1).....	4	4	50.	14	18.5	7	24.2	15	- 5.3	15	12.7
Cream Mixture (Meigs).....	1	1	50.	14	10.8	13	23.85	12	- 6.5	16	13.7
Cream Mixture 1:10.....	2	8	20.	15	40.	1	6.3	4	+ 2.9	10	7.5
Milk and Cracker.....	15	2	88.	3	20.3	3	13.	8	+ 16.4	2	4.
Nestle's Food.....	7	3	70.	7	9.2	14	7.	5	+ 4.4	9	8.7

TABLE C 1.

TOTAL RANK AVERAGE. ALL AGES NURSERY DEPARTMENT;
1 HIGHEST, 16 LOWEST.

Breast and Other Foods	3.2
Milk and Cracker	4.
Milk and Lime Water 1:1	4.5
Breast	5.5
Milk and Lime Water 1:1 with Sugar	6.5
Milk and Barley 2:1	7.
Milk	7.5
Cream Mixture 1:10	7.5
Milk and Mellin's Food	8.2
Nestle's Food	8.7
Peptonized Mixtures	9.7
Milk and Barley 1:1	11.5
Milk and Water 1:1	12.2
Cream Mixture No. 1	12.7
Milk and Water 2:1	13.2
Cream Mixture (Meigs)	13.7

TO SUMMARIZE.

Malted foods and starchy foods, condensed milk, and milk and water as ordinarily used with average cow's milk, do not meet the objection of the difference in Composition, except in part, that is the albuminoids. Cream foods, or foods from proper milk, that is milk containing a larger amount of fat as strippings, meet the difference in the total amount of albuminoids and fats.

No food meets the objection as to difference in the ash, and this is most difficult to solve, especially in the lack of sufficient knowledge.

No food meets the objection of previous exposure to fermentative changes.

The relative importance of these different objections is a matter of personal opinion. I consider the exposure to air and fermentative changes the strongest, and I think it explains the relative lack of success in my hands of the so-called cream foods, which are theoretically far preferable to malted and starchy foods, and peptonized mixtures. The lack of success in artificial feeding is closely linked as to its causes with the summer diarrhea of infants, which is universally recognized and classified as a fermentative disease.

In the peptonized mixtures, with the possible exception

of the ash quantitative composition of the milk may be made identical, and the attenuation of the clot complete.

I had hoped that this method of preparing food for infants which I first used in 1882, would solve many difficulties. It has not done so. This lack of success leads me to attach much less importance to the attenuation of the clot than has formerly been the case, or rather it gives much more weight to other objections which have not in my opinion been sufficiently recognized.

Theoretically, then, we see that no food meets the necessary conditions, and I think it needs more time and study and experiment than has been given the matter, before a solution will be reached; that is theoretically we have no perfect substitute for mother's milk at present.

The great difference in opinion, apparent not only among members of the profession, has led me to make the study of the subject of infant foods at present used, to determine their relative value one between the other, and also their limitations, and, finding what gives the best results, use that as a measure of comparison, experimentally, with any food I may desire to put to the test.

Several years ago I began to collect at The West End Nursery and Infants' Hospital, statistics in regard to the use of artificial feeding as compared to the breast, and the relative value of the different foods employed. The question as to what test should be used to determine the value of any food at once arose. The effect of the food on the body weight of the child seemed the best at command in connection with the general condition of the infant. Experience has given me the strongest faith in the scales as a test, not only of the value of any food, but of the general condition of the child either in health or disease. The increase in weight is an unfailing indication of the developmental and the nutritive processes. I have never yet seen a city reared, hand-fed child among the classes that attend dispensaries (and these are the classes which swell the mortality rates, and these children as adults, fill the hospital wards). I have never, I say, seen a child artificially fed, who was up to the child, breast-fed during

infancy. I have seen children apparently larger, apparently stronger, but the scales always in my experience revealed deficiency. An instance illustrating this is that of two twin girls now six years of age, whose growth and development I have been able to watch, and whose care during infancy I was able to direct. The partially breast-fed child is a little larger, and apparently a little better developed, but she weighs less, she talked and walked later, her teeth are not as good, her chest is not as large as that of the breast-fed child, and the latter is largely her superior mentally and physically. Since writing the above I have learned that these two were equally exposed to the contagion of diphtheria. The artificially fed child contracted the disease and succumbed to its effects, the other did not. Solitary instances are of course of *no value* and this one is adduced *simply in illustration* of my experience. Let me say, however, that I do not consider a certain gain on any food as demonstrating its value, but as being the best guide we have at present. A few words as to the value of these statistics, which involve a slight digression. Given a normal child at birth, free from hereditary taint, two conditions are necessary to the perfect development which it should be our aim to have accomplished: first, proper food; second, proper hygienic surroundings, the most important of these being fresh air. The relative value of these two factors I cannot give. Food is undoubtedly the more important, and is furnished by nature in a perfect form, exquisitely adapted to the physiological conditions of infancy. And until we have attained "a perfect substitute for mother's milk," we shall not have solved the problem of artificial feeding.

Statistics and observations limited to the influence of food are not reliable, unless the other conditions are coincident, or proper allowance is made for them. Infants in the country will thrive on foods, on which in the city they would die by scores. Infants of parents in easy circumstances will thrive on artificial food, on which children of the poorer classes, or in creches or institutions die; yet this latter class on breast milk, or mixed feeding thrive extremely

well; showing that the principal element of failure in nutrition is the food, but that the other factor of hygiene is so important, that its presence may secure a good development with a poor food. In artificial feeding the latter reacts upon the food itself and injures its value. To illustrate this, let us suppose a perfect development to be represented by the figure 100, and assigning to the food factor a developmental value of 60, to the hygienic factor a value of 40, now the first may be modified by the condition of mother or nurse or by the food employed, if artificial food is used, and the latter may be modified by many causes. Let us suppose a development of 40, the lowest compatible with life, of 50, poor, of 75, good, etc. Now the food value may be 60, a perfect food, and hygiene 15, and we have a good development, equivalent to the sum total of 75. The hygiene may be 40, that is perfect, and food only 35, and we get an equally good development of 75, but the hygiene value in the first case of 15, in conjunction with the food value of 35 in the second, gives us a development of only 50, which represents a poor development. With hygiene 40, and food 25, we get 65, with hygiene 15, and the same food value of 25, we get a total of 40, a development incompatible with life; so that to compare breast with artificial feeding, we must know the hygienic factors in both cases, or else they must be the same. Then we can determine the relative value of the foods compared. Table D.

In gathering these statistics, I have nearly always had one or two infants wholly or partially nursed as controlled records, the care and surrounding conditions of these infants have been identical with those artificially fed. The difference between breast feeding in the institution and outside gives the index of any unfavorable influences in the institution itself. The statistics show, therefore, I think the relative value of certain foods, as compared with breast milk and each other, which must remain true under whatever conditions these same foods may be used.

TABLE D.—*Seven Days: Under One Hundred Days.*

	Gains.	Losses.	Per Cent.	Rank.	Gain Average.	Rank.	Loss Average.	Rank.	Total Average (+ or -).	Rank.	Total Rank Average.
Breast with Other Foods.....	10	1	90.9	1	17.00		2.25	1	+ 15.2	1	1.7
Milk and Barley 1:1.....	14	12	53.8	6	16.50		26.8	6	- 2.4	6	5.7
Milk and Barley 2:1.....	9	7	56.2	5	20.1		14.8	4	+ 5.	3	3.2
Milk and Water 1:1.....	4	2	66.	3	6.75		8.5	2	+ 1.6	4	4.2
Milk and Water 2:1.....	4	2	66.	3	10.75		26.5	5	- 1.6	5	5.2
Milk and Water with Malted Food.....	13	3	81.2	2	17.8		13.6	3	+ 11.9	2	2.5
Peptonized Mixtures.....	3	2	60.	4	14.		42.	8	- 8.4	8	6.5
Cream Mixture, No. 1.....	4	4	50.	7	18.5		29.25	7	- 5.3	7	5.7

TABLE D 1.

RANKING IN FOLLOWING ORDER; 1 HIGHEST, 8 LOWEST.

Breast with Other Foods	1.50
Milk with Malted Food	2.50
Milk and Barley 2:1	3.25
Milk and Water 1:1 with Soda and Sugar	4.25
Milk and Water 2:1	5.25
Cream Mixture No. 1	5.75
Milk and Barley 1:1	5.75
Peptonized Mixtures	6.50

Let me say at this point very distinctly, that I disclaim any but a tentative value for these statistics. I recognize fully the danger of basing conclusions upon statistics insufficient in number or not thoroughly studied to determine the other influences such as heredity, previous foods, seasons, etc., and the difference in the hygienic influences in the institution depending on the number of infants brought together, this being a varying factor within certain limits. To determine the effect of these different conditions requires more time and study than I have yet been able to give. I recognize also the fact that often the child thrives on one food and not on another, and there is no possibility, I believe at present, of rearing children by any rule of thumb, for it is constantly recurring in every one's experience that one food apparently less adapted than another to the needs of the infant apparently succeeds the better. It must be due to some existing condition which is not appreciated.

These statistics are of course far too small in number although more numerous than often serve as a basis for most dogmatic dicta in regard to infants, as shown by the laudatory testimonials in the advertising sheets of medical journals, or pamphlets describing the goods of one or another manufacture, as when men write and speak of the value of one and another food, basing their judgment often on an experience more limited than that which has furnished these statistics. Let me say once more that I claim nothing from them except in the way of elimination, clearing the way for further experiment and study.

It would take too much time to discuss what seems to

me the defects of one or another food. They are all faulty. Among the children of the well-to-do classes, I confess it often seems to make little difference what the food is on which they thrive, excepting foods manifestly improper, and also a child will thrive on one food and not on another, never better, I believe, or as well, as on good breast milk, especially if we recognize that the future as well as the present health of the child is to be considered. And yet there are many physicians teaching and writing that bottle feeding is as good, if not better, than breast feeding.

Whatever food is used the deficiencies should be recognized, and if possible remedied, if this can be done without introducing other objectionable conditions. In ordinary foods, the lack of sugar, or of fat, which is noticeable in condensed milk, the excess of ash, or albuminoids and *the absence of putrefactive and fermentative changes*, are the evils to be met and recognized in the individual case. It is my firm opinion, that this last objection is of infinitely greater importance than any or all of the others.

A dogmatic assertion of the necessary dilution for a certain age, not recognizing that it is the physiological age of the child which has to be considered, seems to me mischievous and unscientific. The average variation in mother's milk from month to month, is no greater than can be found in the milk of two women nursing well-nourished children of the same age. If anyone wishes to know the confusion that exists on this subject, let him consult the text-books of pediatrics.

To sum up, I believe the best foods where the hygienic surroundings are good, are the malted foods, or barley and milk, barley starch is so readily transformed into sugar, that in a large number of tests, I have never been able to detect it in the fæces of an infant, even when given during the first day of life. There is some ground for believing that the barley grain itself contains the necessary diastase to malt itself, so to speak.

Where the hygienic surroundings are good, and especially where there is any tendency to weakness of the

digestive system, the pre-digested foods, and the cream foods are the best. It is not in this class of life, however, that the suffering and the evil from the use of artificial food is mostly found, and in the tenement house the peptogenic powder, the cream conserve, or cream mixture or any or all of the thousand and one patented nostrums called foods, fail to secure a development compatible with a healthy life. Where the hygiene is poor, I am strongly led by my personal experience to rely on condensed milk, as better than milk, (what is the milk ordinarily used by poor people?) provided that the deficiency of fat is accounted for.

I have knowledge of a very considerable number of children fed on condensed milk with cod-liver oil, they are not sickly, nor in any respect do they agree with the description given by most authors of children fed on condensed milk.

We must remember, what I think as physicians we sometimes forget, that when we recommend one or another food, that recommendation spreads like the concentric ripples of a disturbed pool; a statement made to an educated mother on the Back Bay may wreck the health of a less happily situated infant in what we call the "slums."

I plead for a more earnest, a more careful consideration of this subject at the hands of every physician, who is called on to decide the question of the artificial feeding of an infant; for the recognition that it is a question not below the dignity of any one's consideration, if by its proper answering he can help to diminish infant mortality, an object for which nations work, or to diminish the suffering from disease, and possibly increase the vitality of generations yet unborn.

Perfect Development,	100
Good "	75
Poor "	50
Death resulting at	40

DEVELOPMENTAL FACTORS.

Perfect Food,	60
" Hygiene,	40

Food, . . . 60,	Hygiene, . . . 15=75.	Good.
Food, . . . 35,	Hygiene, . . . 40=75.	Good.
Food, . . . 35,	Hygiene, . . . 15=50.	Poor.
Food, . . . 25,	Hygiene, . . . 40=65.	Fair.
Food, . . . 25,	Hygiene, . . . 15=40.	Death.

COW'S MILK ANALYSES.

	<i>Leeds'</i> ,	<i>König's</i> ,
Water,	87.7,	87.41,
Total Solids,	12.3,	12.59,
Total Solids, not fat,	8.48,	—
Fat,	3.75,	3.66,
Milk Sugar,	4.42,	4.92,
Caseine,	—	3.01,
Albumen,	—	0.75,
Albuminoids,	3.42,	3.76,
Ash,	0.64,	0.70.

ANALYSES OF WOMAN'S MILK.

	<i>Leeds'</i> ,	<i>König's</i> ,	<i>Vernois & Becquerel</i> .
Specific Gravity,	1.0313,	—	—
Albuminoids,	1.995,	1.94,	—
Sugar,	6.936,	6.04,	4.36,
Fat,	4.131,	3.90,	—
Solids, not fat,	9.137,	—	—
Ash,	0.201,	0.49,	—
Water	—	87.09,	88.90,
Casein,	—	—	3.92,
Butter,	—	—	2.66,
Salts,	—	—	0.13.

TABLE E 1.—*Ranking in Following Order: 1 Highest, 9 Lowest.*

Breast with Other Foods	1.00
Milk and Barley 2:1	3.25
Milk and Water 1:1 with Malted Food	3.50
Milk and Water 2:1	4.50
Peptonized Mixtures	5.00
Cream Foods	6.50
Condensed Milk 1-10	7.00
Milk and Barley 1:1	7.50

TABLE E.—*First Foods used after Weaning in Infants under one hundred days. Used seven days or over.*

	Gains.	Losses.	Per Cent.	Rank.	Gain Average	Rank.	Loss Average.	Rank.	Total Average (+ or -).	Rank.	Total Rank Average.
Breast with all Other Food.....	8	1	88	1	21.3	1	1.	1	18.8	1	1.
All Other Foods.....	16	26			3.0						
Milk and Water 1:1.....	1	2	33	6	3.41	8	22.18	5	— 13.68	6	6.35
Milk and Water 2:1.....	1	1	50	4	3.92	6	22.14	4	— 9.11	4	4.50
Milk and Barley 1:1.....	2	4	33	6	3.53	7	47.79	8	— 30.20	9	7.50
Milk and Barley 2:1.....	3	2	60	3	19.74	2	30.56	6	— 0.30	2	3.25
Peptonized Mixture.....	3	1	75	2	9.74	4	77.50	9	— 12.06	5	5.
Condensed Milk 1:10.....	0	3	0	9	0.	9	20.94	3	— 20.94	7	7.
Cream Foods.....	1	3	25	8	10.80	3	35.16	7	— 23.67	8	6.50
Milk and Water with Malted Food.....	2	2	50	4	8.71	5	19.83	2	— 5.56	3	3.50

TABLE F.—*Standing of Breast and Other Foods.*

	Gains.	Losses.	Per Cent.	Rank.	Gain Average.	Rank.	Loss Average.	Rank.	Total Average (+ or -).	Rank.	Total Rank Average.
With Milk and Barley 1:1.....	3	0	100	1	6.10	4	0.	1	6.10	3	2.25
With Milk and Barley 2:1	2	0	100	1	13.40	3	0.	1	13.40	2	1.75
With Peptonized Mixture.....	2	6	25	4	14.82	2	10.95	4	- 4.51	4	3.50
With Liebig's Food 1:1.....	5	1	83	3	24.34	1	2.25	3	+ 21.50	1	2.

1 *Highest*, 4 *Lowest*.

With Milk and Barley 2:1.....	1.75
With Liebig's Foods.....	2.
With Milk and Barley 1:1.....	2.25
With Peptonized Mixture.....	3.50

TABLE G.—*Order in which Foods Stand of All First Records Taken, Irrespective of Amount of Gain or Loss.*

	Gains.	Losses.	Per Cent.	Rank.
Breast with Other Foods	8	5	61	3
Milk and Water 1:1.....	4	2	66	2
Milk and Barley 2:1.....	3	7	30	10
Mellin's Food 1:1.....	2	2	50	6
Peptonized Mixture.....	3	5	37	8
Milk and Water 2:1.....	4	3	56	5
Cream Foods.....	4	5	44	7
Cream Mixture.....	6	4	60	4
Milk and Barley.....	2	4	33	9

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Thompson: Why Diseases of Children Should be Made a Special Study. (*Jour. Amer. Med. Ass'n.*, Oct. 9.)

Dr. Mary H. Thompson writes a very satisfactory article upon this subject, giving four reasons and examples of their practical application. The reasons are:

1. "Because of the undeveloped and growing patient," who, "though ill, must yet be nourished."

2. "Because of the difficulty in diagnosing those maladies which are ill-defined forms of disease to which children under one year of age are subject."

3. "Because remedies considered essential to the relief of adults, are illy borne by the young child, and that those used must be considered in regard to the administration with the peculiar food of the child, the minute dose appropriate to the age and susceptibility of the nervous system in the infant to narcotics."

4. "Because the special study will reflect itself upon the minds of the laity, impressing them with the importance of saving a child's life, and that in so doing, a life in its entirety has been saved."

Comby: *The Nursing of Children by their Mothers.* (*Jahrb. f. Kinderh.* [from *Prog. Méd.*, 1885], xxiv., 3.)

Physicians are believed to be too lax in their duty of urging mothers to nurse their children. In Paris more than half of the mothers evade this maternal duty. The contra-indications to the nursing of a child by its mother are very few. Anemia, emaciation, and weakness on the part of the mother do not, as a rule, furnish with a valid excuse for refusing to nurse her child. On the contrary, the mother's general condition improves, in many cases during the period of lactation. Neither nervous derangements, with the exceptions of the severe forms of epilepsy, and hystero-epilepsy, nor even scrofula contra-indicate nursing by the mother, while syphilis should never furnish an excuse. Tuberculosis, Bright's disease, diabetes, and some other serious conditions may serve as contra-indications. During the first year of life a child should receive no other form of nourishment than mother's milk, and it would be very advantageous to continue this means six months longer.

A. F. C.

Barker, Fordyce: *Maternal Impressions on the Fetus in Utero.* Proceed. Amer. Gynecol. Soc. (*Med. Record*, Oct. 2.)

The idea that it was possible to influence the fetus in utero through impression upon the mother has been handed down from the earliest biblical and heathen times. Much has been written pro and con, with the mass of evidence in its favor. Maternal impressions should not be restricted to purely emotional causes, but to physical and psychical as well. The earlier in the pregnancy that the impression occurs, the more frequently does the deformity follow, and the greater is the correspondence between cause and effect. Dr. B. related several cases and in the discussion which followed other members also; the impression prevailing that such occurrences were not accidental. A committee was appointed to investigate the subject.

Comby: On the Rate of Mortality Among Infants. (*Jahrbuch f. Kinderh* [from *Prog. Méd.*, 1885], xxiv., 3.)

Since 1840 the rate of mortality in France among infants in the first year of life has constantly increased. It has advanced steadily from 160 to 178 per 1,000 of all births. In the rural districts the mortality of illegitimate children is even greater than it is in the cities. The mortality among those who are given by their mothers to wet-nurses is 90 per cent. in some of the departments, in Paris it is 75 per cent. Among those who are nourished artificially the mortality is quite as great. In the year 1882, in Paris alone, 4,510 children under one year of age died of athrepsia. Nowhere was this frightful result seen if the children were nursed by their mothers. A very large number of deaths at this early period were attributable to syphilis. Of about 500 pregnancies which were tabulated by Fournier, in which one or both of the parents were syphilitic, the children died in 382. Certain changes in the marriage contract are advisable for the purpose of reducing this frightful mortality rate. Working women who are willing to nurse their children should have some provision made for them, and in general, mothers of all social classes should be encouraged to perform this duty to their offspring. The most careful supervision should be exercised over those who take the children of others to nurse or to bring up. A law which was passed in 1874, having this end in view, quickly effected the reduction of the mortality rate in one of the departments by 3 or 4 per cent.

A. F. C.

Yeldham: How to Administer Cod-liver Oil to Infants. (*Med. Record*, Oct. 2.)

Dr. Yeldham says, let the nurse dip the end of her finger in the oil and put it in the child's mouth and it will be sucked off with avidity and pleasure. This may be repeated five or six times in the twenty-four hours. He says it never disagrees with the child, and can be given to the youngest infants often with great advantage.

Harvey: Umbilical Cord Shortened by Encircling Neck of Child and Delaying the Labor. (*Med. Record*, Oct. 2.)

A patient in her second labor passed through the first stage naturally. During the second stage, although the os was fully dilated and the membranes protruding, the head was unable to engage, but with each pain was drawn the right side of the pelvic brim. At each uterine con-

traction the patient complained of great pain on the right side and cried out that she was being "torn to pieces." The patient, becoming unmanageable, was given chloroform, and a consultant applied the forceps. Hemorrhage to such an alarming extent followed their use that they were removed and the child turned. The body came down easily, but it took the united efforts of the consultant, Dr. H., with his fingers in the child's mouth, and the nurse to deliver the head, which came out, together with the placenta, with a pop, so suddenly as to cause the consultant and nurse to take a seat on the floor.

The cord was found to be wound around the child's neck many times, which explained fully the cause of the non-descent of the head. J. VAN VORST, JR.

A Monstrosity Dying. (Editorial News.) *Medical Record*, Oct. 2.)

The twins of "Locona" are boys, separated as far as the sixth rib, have one abdomen and one pair of legs between them. They cannot walk but keep their balance when standing by lacing their arms around each other's neck. One is healthier than the other, eats often and heartily, and apparently keeps the other alive. Recently they quarrelled over a toy and the weaker one grew so excited that his "heart blood suddenly ceased to flow," and he became completely lethargic, from which state he did not awaken until the following morning. He had a similar attack about a year ago in Berlin, and it was then said by Virchow that another would prove fatal.

Lunin: The Therapeutics and Statistics of Diphtheria (*Jahrb. f. Kinderh.*, [from *St. Petersburg Med. Wochen*, 6 and 7, 1885], xxiv., 3.)

In the analysis of the cases, the treatment of which is here discussed, only those were considered which represented severe forms of the disease, the children being all under the age of twelve years. The various methods of treatment which have been recommended within the past few years were all given fair trials with the following results:

1. Sublimate treatment. It consisted in local applications of a one per cent. solution and gargling the pharynx with a 1.5000 solution. The applications were made every two hours, and the gargling was practiced hourly. Fifty seven severe cases were thus treated, and 26 were fatal.

2. Chloride of iron treatment. The dose was graduated in accordance with the patient's age, from one drop every two hours to two drops every half hour. Wine and musk were given in large doses, and every hour the throat was gargled with a three per cent. solution of boric acid. The results were worse than with the sublimate treatment.

3. Treatment with a pure quinoline. Seifert's plan was followed, local applications being made every two hours with a five per cent. solution in water and alcohol, a very weak gargle or spray of the same substances being also used. Results inferior to those which are claimed by Seifert.

4. Resorcin treatment. A ten per cent. solution was used for local application and a one per cent. solution for a gargle. Results not favorable.

5. Bromine treatment. At intervals of one to three hours a local application was made of a solution containing five-tenths of a gram to a gram of bromine, the same quantity of bromate of potash, and 200 grams of water. At intervals of one-half an hour to two hours a solution which was two-thirds the strength of the foregoing was inhaled. Results not satisfactory.

5. Treatment with oil of turpentine. Doses not exceeding ten drops hourly were given for periods which lasted from two to ten days. If vomiting or diarrhea occurred, the medicine was discontinued for the time. Strangury did not result in any case. Results bad.

As a summary, 43 cases of fibrinous diphtheria were treated with sublimate, and fourteen of the phlegmonous septic variety. Of the former 30.2 per cent. died, of the latter 92.9.

Forty-three of the former variety received chloride of iron, and 51 of the latter. The deaths were 32.6 per cent. for the former, and 76.5 for the latter. Nineteen of the former received quinoline and 19 of the latter; 31.6 per cent. of the former died, and 100.0 of the latter. Ten of the former variety received resorcin, and 19 of the latter; 20.0 per cent. of the former died, 89.5 of the latter.

Fifteen of the former received bromine, 18 of the latter; 46.7 per cent. of the former died, 88.9 of the latter.

Twelve of the cases of fibrinous diphtheria were treated with oil of turpentine, and 11 of the cases of the phlegmonous-septic variety; 8.3 per cent. of the former died, and 81.8 of the latter. In all 142 cases of fibrinous diphtheria were treated with a percentage mortality of 30.3. One hundred and twenty-two of the severe form were treated with a

mortality of 84.4 per cent. Thirty-two additional cases of diphtheria received other methods of treatment with a mortality of eighteen (60 per cent.). As will be seen, the best results of the less severe form were obtained with turpentine, for the more severe form with iron.

A. F. C.

Joffray: *The Nature and the Treatment of Chorea.* (*Jahrb. f. Kinderh.* [from *Prog. Méd.*, 1885], xxiv., 3.)

The author denies the relationship which has been asserted by some writers between rheumatism and chorea, and considers that the joint affections which are often seen in connection with, preceeding or following chorea, are arthropathies *pure and simple*, which are due to disease of the spinal cord. It is not to be denied, however, that chorea may be associated with diseases of the cord, and this is seen in the diminished or abolished patellar reflex, in certain cases of chorea. The treatment consists mainly in the use of chloral. It should be given regularly three times a day, for two weeks to two months, or until a complete cure has taken place. Prolonged use of this substance may result in the appearance upon the skin of a rash resembling measles or erythema, but it is not of long duration, even though the chloral be given continuously.

To children who are upwards of ten years of age four grams daily may be given, one in the morning, one at noon, and two in the evening. For children six to eight years of age three grams daily should be given, but in all cases the susceptibility of the child must be carefully ascertained and the dosage regulated accordingly, enough being given so that sleep would follow after a quarter of an hour. To very young children it is recommended that a watery solution of the chloral be given in jelly. In bad cases it is recommended that the wet pack be also used, the child being wrapped in a sheet which has been wrung out of water at a temperature of 10–12° C., then covered with a woolen blanket and kept in bed with this covering for half an hour. This may be done twice daily, and often with good results.

A. F. C.

Haynes: *Balsam Capaiba in Infantile Gonorrheal Ophthalmia.* (*Med. Record*, Oct. 9.)

An infant four days old had contracted conjunctivitis from its mother, who had gonorrhea at the time of confinement. The inflammation had existed two days; the cornea was covered with pus, and the eyelids were so

swollen that they could be separated only with difficulty under chloroform. For several days the remedies used seemed only to hold the disease in check; the child lost flesh and severe stomatitis developed. Applications were now made of Balsam capaiba to the temples, external parts of the eyelids and above the eyebrows a little was also inserted between the lids. The pus was removed every hour by cotton pledgets soaked in a solution of alum or chloride of zinc. From the commencement of the use of capaiba improvement began. At the end of four weeks the cornea was clear.

Dr. H. says the use of capaiba was not original with him.

The Summer Diarrhea of Infants Treated by Nitrate of Silver and Bichloride of Mercury. (Antiferments.) (*N. Y. Med. Record*, Sept. 18.)

Dr. D. Morton believes that the summer diarrhea of children depends upon (1) vaso-motor paralysis; that this condition causes more or less (2) turpidity of the intestinal blood vessels, and that the (3) inflammatory phenomena that frequently occur in the course of these diarrheas are attributable to the irritant action of the intestinal contents in a state of fermentation. There are two indications for treatment, first to overcome that effect of heat by which the mucous lining of the alimentary canal has been brought into a state of congestion and consequently ready for great and rapid loss of appropriated material. This indication is to be met in the main by measures for reduction of temperature.

The second indication is to prevent fermentation.

The second indication is to be met by withholding food for a considerable time if it does not digest, as it would prove a source of fermentation. Chiefly, however, the treatment consists in giving antiferments, nitrate of silver and bichloride of mercury. When nausea and vomiting are present the former is to be preferred; it is given in doses of $\frac{1}{32}$ gr. dissolved in distilled water, largely diluted, four or five times a day to a child one year old.

The bichloride is given in $\frac{1}{100}$ gr. doses dissolved in water to which a little alcohol or an aromatic tincture has been added.

Dr. M. thinks that astringents may in some cases be indicated, but he prefers tincture of nux vomica, $\frac{1}{4}$ to $\frac{1}{2}$ drop every hour or two, together with pepsin and hydrochloric acid to a child one year old. He thinks that belladonna has the power to counteract the tendency to congestion of the abdominal viscera.

J. VAN VORST, JR.

2. MEDICINE.

Gibney: Cerebral Paralysis in Children. (Read before the Practitioners' Society of New York.) (*Med. Record*, Oct. 9.)

A boy four and a half years of age, borne with equinovarus of both feet, had been in unusually good health until two weeks prior to being taken sick. During these two weeks the symptoms consisted of restlessness, gritting his teeth and slight fever. He had not been confined to the house. He was then attacked one evening with general convulsions which lasted until the following morning, when he had a rectal temperature of 106.2° F. He was put into a bath of 95° F., and at the end of ten minutes the convulsions ceased and he fell asleep. He was left in the bath thirty-five minutes longer and then removed, the temperature being 102° F. He awoke at noon conscious but unable to speak. The next day the right upper extremity was completely paralyzed and the lower incompletely; temp. 101.2° F. On the fifth day the paralysis of the lower extremity was complete and the right side of the face was involved; he could take food fairly well. Bowels moved for the first time in three days. The next day at noon, temperature 105° F., there were convulsive clonic movements of the right side and face. Fifteen grains of antipyrine failing to reduce the temperature in forty-five minutes, he was put into a bath of 95° F.; at the end of half an hour temperature 103° F. In the evening, temperature 104° F., pulse 160, respiration 24; hemianesthesia, abdomen not retracted, no strabismus. Bromide of potash xv. gr. every two hours. The next day (7th) evening temperature 105° F.; ordered antipyrin xviii. grs., chloral viii. grs.; at the end of four hours temperature 100.4° F. Chloral given on account of hemispasm. Twenty-third day improvement now began, the tongue could be fully protruded, the facial paralysis had nearly disappeared; he was still unable to talk; occasional hemispasm.

Thirty-third day. Condition the same except he can move his fingers slightly although flexed into the palm. Exalted patella tendon reflex. Bromide of potash discontinued and iodide in same amount given.

Two days afterward (35th day) he could raise the arm slightly, crawl across the floor, and say a few words quite distinctly.

Dr. Gibney also related a case in the practice of Holt. A boy aged four years, whose elder brother was an epileptic, was taken sick very much as the previous patient, the paralysis being on the right side. He recovered up to a certain point and then was lost sight of for a year, when he was brought back for epilepsy. A year after this he was seen and it was learned that the epileptic seizures came at short intervals, he had not, however, taken the bromide prescribed with regularity. His facial paralysis had entirely disappeared, but he limped in walking.

In the discussion which followed Dr. Holt related the case of an infant of fourteen months with left hemiplegia in whom there had not been any convulsions. The result was fatal; the autopsy showed excess of ventricular fluid and the right frontal and parietal lobes reduced to a pul-taceous mass.

Dr. Gibney thought the paralysis in these cases was due to pabio-encephylitis.

Dr. Putzel said that Gowers claimed it was due to thrombosis of the veins which pass from the convexity of the brain to the longitudinal sinus.

Dr. Kinnicut thought the lesions were various. If valvular diseases of the heart antedated the attack embolism could be entertained as a cause; but cardiac disease is rare in children.

Dr. Hudson thought that the cause was a disturbance of the cerebral circulation, a congestion or hyperemia, which modified the nutrition of the brain substance.

Treatment did not materially alter the course of the disease.

Damaschino: *Pathological Anatomy of Infantile Paralysis.* (*Jahrb. f. Kinderh.*, [from *Gaz. des rôp*, 1885, No. 79], xxiv., 3.)

An analysis of ten cases of this disease forms the basis of the author's paper. He observed that in the initial period the spinal cord presented nothing unusual externally, but in cases of longer standing decided diminution in volume was evident at its cervical and dorsal enlargements. In cross sections of fresh specimens of the cord myelitic accumulations of varying color and extent were to be seen. During the first two months of the disease these accumulations are red and of a round form. They may occupy the entire extent of the anterior horn or be limited to a spot which is barely perceptible. They are surrounded by a zone of white matter, are soft in recent

cases, but in those of longer duration have walls that are somewhat indurated. Change in the vascular system are the ones which first attract attention, the anterior horns being intensely vascular, with dilated, almost varicose vessels, while the capillaries in the normal condition of the cord are barely perceptible, and not at all dilated. The lymph spaces are crowded with granular cells. The myeline has disappeared from the interior of the accumulations, while in its place leucocytes and particles of fat are to be seen, especially where osmium staining is used.

The cells of the motor ganglions are filled with molecules of albumen which obscure their nuclei, and subsequently become converted into a shapeless mass which is readily stained by carmine. In the larger nerves which pass through the anterior horns, the myeline is broken up into small particles, and at length the axis cylinder disappears. In the final stages, the anterior horns appear to be composed of a tissue in which the nerve elements are entirely wanting. In those cells in which the neuralgia originates one finds modified connective tissue cells. Around the morbid tissue is found a zone of thick tissue which abounds in spindle cells. In cases which are of considerable duration sclerotic tissue is also found in this locality, rich in nuclei and corpora amylacea. The inter-spinal nerve roots are affected as well as the branches of the anterior roots. The white substance participates in the disease process, especially the bundles of the pyramids.

In the anterior roots the myeline is destroyed, the axis cylinders disappear, and even in the peripheral nerves diseased elements are found by the side of healthy ones. In the muscles which are supplied by the affected nerves the transverse striation at first becomes less distinct. The nuclei of the sarcolemmas proliferate and the contents of the muscle cell become granular. Finally the muscular substance disappears and is replaced by molecules of fat. The lesions in the bones are not always of equal extent with those of the muscles, for they may be slight when the muscles are greatly atrophied. The sub-periosteal layers of tissue get thicker and thicker, even while the entire underlying bone may be thin and atrophic. Both long and flat bones *may* undergo decided atrophy. The joints become atrophied, sub-luxations are not infrequent at the shoulder-joint, while at the tibio-tarsal joint the lesion may result in the development of club-foot.

A. F. C.

Smith, J. Lewis: Pseudo-Membranous Croup. Treatment by Strong Alkaline Vapors, Trypsin and Intubation of Larynx. (*Amer. Jour. Med. Sciences*, October.)

Not infrequently croup can be prevented by the persistent use of alkaline inhalations begun as soon as the least huskiness of the voice is heard. The best method for this purpose is a steam atomizer, the solution to be atomized consisting of

R—Trypsin, q. s.,	} As much as will be held in solution without clogging the delivery tube.
Sodii Bicarb., ʒii.,	
Aq, Calcis, ʒvi.	

M.

Trypsin is very expensive for any extended use.

Pilocarpine is contraindicated because, expectoration of the bronchial secretion being difficult, on account of the obstructing the membranes, it is likely to cause a rapid filling up of the bronchial tubes, to increase the dyspnea and to produce sudden death with symptoms very similar to those due to edema of the lungs.

Intubation of the larynx is available in those cases in which parents are unwilling that tracheotomy should be done so early in the disease.

Its advantages are, that it is not looked upon as an operation, can be done without a professional assistant, rapidly and effectually.

Free, S. M.: Chorea Treated by Cunicifuga Racemosa. (Snake Root.) (*Maryland Med. Jour.* Sept. 11.)

Dr. S. M. Free reports Dr. H. Corson as saying that he has never seen chorea associated with endo or peri-carditis, or with rheumatism. He gives snake root, the tincture or fluid extract in large doses and refers to two cases, in children four years of age, both of whom had been treated with other drugs, and who rapidly recovered when put upon large doses of this remedy.

Harvey: Scarlet Fever and the Puerperal State. (*Med. Record*, Oct. 2.)

A woman il para on the seventh day after child birth, got up to have her bed remade, during which a neighbor's infant was laid on it; when taken off the child was seen to be covered with a red rash. It died of scarlet fever inside of a week. The patient having passed a restless night, on the following day had a temperature of 104° F. Skin dry; red strawberry tongue; intense headache;

smarting eyes and burning pains in the abdomen, limbs, and feet. The lochia became scanty and very offensive; abdomen tender and very much swollen. Her elder child had been taken sick the same night and presented symptoms of undoubted scarlet fever and in time disquamation ensued; recovery took place.

The mother, after a severe illness with high temperature and intense abdominal pain, that required large doses of opium, recovered without any further symptoms of scarlet fever.

Guaïta: Spasm of the Glottis as a Symptom of Gastro-Intestinal Troubles (*Rev. Mens. des Mal. de l'Enf.*, June 1886 and *Arch. di Pat. Inf.*, May 1886).

In this condition the glottis is wholly or partially occluded and the symptoms which result are those of asphyxia in greater or lesser intensity. The predisposing cause is rhachitis, and the conditions which develop from it or with it, thoracic deformity, chronic hydrocephalus, swelling and caseation of the bronchial glands, catarrhal laryngitis, whooping cough, and pathological increase of reflex excitability. Among the determining causes may be mentioned local hyperesthesia of the larynx, crying, the compression of external tumors (*e. g.*, hypertrophy of the thyroid gland), or of internal ones (*e. g.*, polypi, foreign bodies), the action of cold, etc. Of especial influence is the action of the pneumo-gastric nerve in cases in which those branches which are distributed to the alimentary tract are irritated by troubles in the stomach or the intestine, such as overloading of the stomach, dyspepsia, intestinal catarrh, and meteorism. As to the period of life in which this condition is most prevalent authors differ widely, but it may be said in general that it is during the first two years. As to etiology the author thinks that dentition can seldom be proved to be the cause. Artificial alimentation is an important factor in producing it, especially on account of the gastro-intestinal disturbance which such a method frequently entails. One hundred and forty cases of this condition have been seen by the author during the past ten years among 8,000 children whose ages were under three years, the most of them being under eighteen months. In 85 of these cases the cause was gastro-intestinal disturbance, in the others it was related more or less intimately with rhachitis. In the former class a lymphatic constitution prevailed.

A. F. B.

Doyen: Anatomical and Experimental Investigations Concerning Asiatic Cholera. (*Jahrb. f. K.* [from *Arch. de Phys. Norm et Path.*, 1885, No. 6], xxiv., 3.)

The following conclusions were the result of the author's investigations:

1. All objections to Koch's discovery appear groundless in the presence of careful and methodical investigation of the facts.

2. The common bacillus is the carrier of the disease. Man carries the cholera germ in his body and diffuses it through the medium of feces and soiled clothing.

3. Dry air is an insurmountable obstacle for the development of the cholera germ. Warm and moist winds are always followed by the extension of the pestilence.

Cholera germs find excellent soil for development in the holds of vessels where the air is rich in moisture which is laden with chloride of sodium and organic matters.

4. The cholera spirillum is an organism of low resisting power. If it had a resisting power equal to that of the spore of carbuncle or of the tubercle-bacillus the mortality from the disease would be much more frightful than it is, and the pestilence would remain endemic in many places.

5. When the comma bacillus has once been introduced into the intestine it produces an universal infection of the organism. A deficiency of the acid secretion of the stomach and intestinal disorders favor the development of the cholera spirilla. Hence intemperance, bad social and hygienic surroundings and filth may be considered its allies. Drinking water may be the means of propagating the disease just as in typhoid fever.

3. SURGERY.

Fitz: Inflammation of the Vermiform Appendix. (*Amer. Jour. Med. Sciences*, Oct.)

James Copeland in 1834 was the first to discriminate between inflammation of the cecum, the peri-cecal tissue and the vermiform appendix. These conditions had been previously classified as iliac abscess without any clear idea of the true connection between it and the parts situated in the right iliac fossa. Later, typhilitis, peri- and para-typhilitic were used for the terms employed at present. In the majority of cases the cecum is intact, while the appendix is ulcerated and perforated.

Perforation of the appendix from tuberculous disease or typhoid fever, although it is the seat of these ulcers, is very rare. The so-called verityphlic abscess is usually an encysted peritonitis. If an abscess exists in the pericecal fibrous tissue, it is in most instances caused by an inflamed appendix. If either of these forms of abscess, viz.: peritoneal or pericecal, communicates with the cecum, such an opening is usually the result, not the cause of the abscess. Hence we see that the appendix is the part from which trouble arises in the majority of cases.

The various results of an inflammation of the appendix are due to peculiarities in its structure and position, which, although in part congenital are oftener acquired as the result of previous diseases. Teft found 110 cases of diseased appendices in 300 autopsies of all ages, which allows a diseased appendix to every third person. Peculiarities as regards length, it has been found as long as nine inches and as short as half an inch. Peculiarities as regards position: it has been found in almost every position possible, communicating with the rectum, the ileum, in the inguinal canal, in the scrotum, and adherent to the navel.

Foreign bodies are usually suspected as a cause of inflammation of the appendix, but as a rule, first in frequency comes moulded masses of inspissated feces (forty-seven per cent.), more or less cylindrical in shape and of various degrees of density. Seeds of fruits appear to be next in frequency (twelve per cent.), less common (on hair (bristles), worms or their eggs, shot, pins, pills, gallstones. The cause of the retention of these bodies may be due to congenital or acquired peculiarities. The habits of individuals with regard to diet and regulation of bowels are of unquestionable importance. It is, however, a significant fact that those persons who are habitually constipated and accustomed to swallow fruit containing numerous seeds, usually escape any disease of the appendix.

A local cause is found in three-fifths of all cases; other than local causes have been attributed to acts of violence, lifting, (particularly,) and jumping, and occur in one-fifth of all cases. It appears from statistics that more males than females suffer, that among children up to ten years of age the number of cases is about ten per cent., from ten years to twenty years thirty-eight per cent.

The inflammatory process once excited its course and results show extreme variation. The inflammation can be recognized anatomically, but clinically its apportion is doubtful.

If there is not a retained concretion or foreign body, the inflammation may progress toward ulceration or peritonitis, which may end fatally; if there is a retained concretion or foreign body these events are likely to occur.

The effect of the inflammatory process upon the neighboring parts may result in a more or less complete obliteration of the canal of the appendix, with or without circumscribed dilatation; or it may become associated with a necrosis of the wall, a peritonitis, usually circumscribed at the outset, and perforation. The product of the circumscribed peritonitis varies; usually it is a thin, discolored, very offensive pus, but it may be thick, yellow and odorless. This product may be absorbed, or may escape into the general peritoneal cavity, or may enter any of the hollow viscera, or may open on the external surface of the body by a sinew, after a tedious process of tissue destruction, or it may, as has been known, break into the internal iliac artery. Emboli are likely to be carried to distant parts and set up destructive processes in them.

The latency of the symptoms usually makes an early diagnosis almost impossible, and consequently the best method of treatment is hopelessly postponed.

The first, most constant symptom of perforating inflammation of the appendix is sudden, severe abdominal pain, occasionally accompanied by a chill, or nausea and vomiting; it usually occurs in apparently healthy individuals. The suddenness and intensity of the pain are presumably due to the separation of recent adhesions of an acute appendicular peritonitis and often, perhaps usually, to the perforation of the inflamed appendix.

The time that the pain occurs, with reference to the day of the disease, is by preference the first or third day. The temperature is rarely high, viz.: 100° F. to 102° F.

A circumscribed swelling situated below a line extending from the anterior suppository iliac spine to the navel, may be expected as early as the third day, but it is difficult to recognize. A more or less circumscribed sensation of resistance may be perceived by palpation, but neither dulness or fluctuation may be obtained on account of the extreme tenderness of the abdominal wall or by intervening and adherent coils of intestines, especially if they contain gas. A rectal examination may reveal a circumscribed mass and this method should be resorted to under an anesthetic if other signs fail. Exploratory puncture, by a hypodermic or aspirate needle, may not show the presence of pus and yet it is not to be considered absent upon this evidence.

The termination in resolution does sometimes occur, but there is not any statistics of its relative frequency.

A spontaneous evacuation of the abscess is to anticipate and guard against.

The proper treatment to pursue is to keep the bowels quiet, absolute rest in bed, liquid diet in small but repeated quantities and sufficient opium, in some form, to neutralize pain.

If after the first twenty-four hours from the onset of the severe pain, the peritonitis is evidently spreading, and the condition of the patient is grave, the question should be entertained of an immediate operation for exposing the appendix and determining its condition with reference to its removal.

If surgical interference is not undertaken at the time stated above, the indications are to continue the treatment previously begun and to await the formation of the tumor, *i.e.*, the circumscribing of the peritonitis, which is certain to form, if the patient survives, by the third day, and should then be immediately opened.

If the opening of the abscess cannot be anticipated, the escape of a small quantity of pus, on account of its extreme acidity, will set up a general peritonitis which is usually fatal.

The second, third, or fourth days are those which include the largest number of cases of beginning general peritonitis.

Errors in diagnosis have been numerous; it has been mistaken for inflammation of the intestinal obstruction or strangulation, intussusception, pelvic peritonitis, pelvic hematocile, psoriasis, renal and biliary colic, and movable kidney.

Joffray: *The Nervous Symptoms in Pott's Disease.* (*Jahrb. f. Kinderh.* [from *Abeille Méd.*, 1885, No. 15], xxiv., 3.)

Nervous symptoms may be present during all the periods of caries of the spine, but they commonly precede the local manifestations of the disease. They occur in the form of pain in the epigastrium and abdomen, which may either be of a heavy character like a feeling of pressure, or they may be neuralgic in character, or there may be darting pains in the lower extremities, such as are suggestive of ataxia. Unlike ataxia the tendon reflexes are normal in this disease and this furnishes a point for differential diagnosis. Usually, also, there is a

point in the vertebral column where there is a heavy feeling which amounts to pain. The *girdle* pain is also frequently experienced. Motor pareses are quite characteristic; they seldom occur suddenly, and are attended by decided softening of the bodies of the vertebra. The paralyzes are at first incomplete, with exaggerated patillar reflex, and the so-called spinal epilepsy, with marked dorsal flexion of the foot. Finally the legs become contracted, and at this stage there are also decided disturbances of sensibility, with derangement of the trophic and vaso motor nerve areas. As a result of these abnormal conditions we find coldness of the extremities, sweating, paralysis of the rectum, cystitis, herpes zoster and joint disorders. When the cervical vertebra become carious there may occur paralysis of an arm with evidences of nerve inflammation. Recovery is not unusual and the author recommends for treatment the repeated applsca-tion of the actual cautery along the vertebral column, and the use of the tincture of iodine internally.

Gibert: Congenital Supra-Umbilical Fissure. (*Med. Record* [*Normandie Médicale*, May 15, 1886], July 3.)

Dr. Gibert relates four cases, from three years of age to adult life, in which a minute eventration, an intermuscular fissure, in the linea alba above the umbilicus formed a buttonhole opening, which was the cause of a series of painful symptoms; pain in the epigastric region, not constant, but liable to be very acute; when severe it causes vomiting; the patient flexes its thigh upon the abdomen, and presses the latter with its hands. The symptoms occur only during the day time when the child is at play.

The general health is not impaired and sleep is undisturbed. Examination of the abdomen does not reveal any umbilical or supra-umbilical hernia, only the opening above described. Neither intestine nor omentum have ever been found in the opening.

Wanamaker: A Case of Anencephalus. (*Amer Jour. Obstet.*, Aug., 1886.)

Dr. W. C. Wanamaker reports a case, sex not given, in which the bones of the vault of the cranium were absent and their place occupied by a vascular tumor much larger than a fetal head at term. The body was perfectly formed; face small; eyes prominent. The child was dead. The mother was a primipara aged twenty-five years.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

OCTOBER, 1886.

[No. 10.]

Original Communications.

ON SOME POINTS IN CONNECTION WITH
RAYNAUD'S DISEASE.¹

(Being part of a clinical lecture delivered at the Hospital for Sick Children, Great Ormond Street, on June 2. 1886.)

BY JOHN ABERCROMBIE, M.D., F.R.C.P.,

Assistant Physician to the Hospital.

After some introductory remarks on the history of the affection, the lecturer continued: I will now call your attention to the following typical case:

Jacob Bryant was brought to me in the out-patient room here on July 17, 1884. He was then three years old, and his mother told us that about fifteen months

¹ The best definition of the disease is that given by Raynaud himself, in his original thesis where he says: "I propose to demonstrate that there exists a variety of dry gangrene, affecting the extremities which it is impossible to explain by a vascular obliteration: a variety characterized especially by a remarkable tendency to symmetry, so that it always affects similar parts, both upper and lower limbs, or all four at the same time, and in some cases also the nose and ears, and I shall endeavor to prove that this kind of gangrene owns for its cause some error as to the innervation of the capillary vessels."

previously she had noticed that his hands seemed to be easily chilled, and to get blue and cold; since that date he had been subject to this tendency, and subsequently not only his hands, but his cheeks, ears, and legs had become liable to be affected in a similar way. Now he gets blue and cold much more easily than he did; his hands swell very much when they are cold, and when he is very bad he cries with pain in his stomach. At the commencement of this illness he was very yellow. Nothing peculiar has ever been noticed about his urine. When his hands get warm again the pain in the belly goes away.

He is the sixteenth child, was born at the full time and was a big baby. There are only three living besides him, viz.: the third, fourth, and fifth. The first died at sixth months, and the second at seven months, and all between the fifth and this were not full time.

The doctor who has attended the family told me that the father had had syphilis, and that he had attended this child a year previously for syphilitic manifestations. The father is also said to have had ague some time ago. At present they live at Potter's Bar, but did not live there when this child's ailment commenced, though they lived in the same county (Hertfordshire). When he came first he was seen to be well nourished, rather fat, the head was large, but the skull was not massive, and no bosses were felt. There were no physical signs of disease in the chest or abdomen. He was suffering from the effects of an attack when he came into the room, the ears were somewhat dusky; his hands were, blue, cold, and swollen to two inches above the wrists, most marked at tips of fingers, the state of the radial arteries was not noted; the swelling was quite marked but there was no pitting. Wrapping him up in cotton wool in front of the fire for half an hour sufficed to remove the blueness. The toes were also cold but less blue. We were told that he was subject to constipation.

August 28. His mother says that a fortnight ago, on his way home from here he shivered, and when he got

home he passed some water almost like blood; she had never noticed anything in his water like it before, three days ago the same thing happened again. Otherwise the mother considers him better.

September 25. Mother still considers that he is decidedly improving. His hands get warm now in five minutes, whereas formerly they used to take an hour.

October 9th. Came in a bad attack to-day. He passed some urine which Dr. Thomson was kind enough to examine for me with the following report: Brownish red color, quite clear (on standing a slight mucous deposit) sp: gr: 1023, albumen about $\frac{1}{10}$, sugar none. Bile pigment, slight play of colors with Gmelin's test. Blood pigment distinct, blue with guaiacum tin and ozonic ether. Flocculent brown precipitate when boiled with a little liq. potassa. Indican not much. Microscopically no tube casts seen (in six specimens examined), no blood corpuscles or pus, only a few octahedral oxalate crystals, mucin and amorphous matter. In short the urine was characteristic of that seen in the disease known as paroxysmal hematuria or hemoglobinuria. I need not weary you with a repetition of his state at every visit, but I will merely add that as he had a long drive to the station and then a railway journey, he almost always had an attack on coming here. After the attack he always wanted to go to sleep and would not be himself for an hour or more even after his hands had apparently recovered. When well he was a particularly jolly little fellow and would insist on going out of doors to play, and when warned by his mother that if he did his hands would get bad he would always say "let them," the recollections of his previous suffering never being allowed to interfere with the pleasure in the immediate future.

May 14th, 1885. Not having seen him for some time I wrote for him and he was brought to-day. His mother said that he had got through the winter pretty well, not having had many severe attacks, but to-day she had not brought a hot bottle with her as usual and the child had got very cold on the journey. His hands were extremely

dusky, cold and swollen and his feet were also very cold and he took longer to get warm to-day than I had ever known before. His hands, at all times big, were literally enormous to-day. I examined some of the urine passed whilst he was in this state and it was highly characteristic of paroxysmal hematuria. I tried to give him some nitrite of amyl to see if it would relieve the spasm of the vessels, but he made such a fuss about swallowing it that I doubt if any reached his stomach and no result ensued.

Some six weeks later I made a note that the mother said he did not seem all right after an attack until he had passed his water. She also told me that she gave him port wine to warm his inside and that it seemed to do him a great deal of good.

March 19th, 1886. Mother says he has got through the winter pretty well; he is always kept in a room with a fire in it. Is still indifferent and would go out, fearless of an attack, if allowed. Feet do not often get bad now, he used to get bad all over, but does not do so now. Got rather bad to-day from coming here. Urine turbid, faintly pink, loaded with urates, a good deal of albumen, perhaps one-third, much granular debris, no blood corpuscles. He is always bad in his inside after an attack. His mother says that the air in the morning before ten has more effect upon him than later. He has grown a great deal and the spade-like condition of his hands is now very marked. Conjunctiva yellowish.

The association of paroxysmal hemoglobinuria with the symmetrical gargrene of the extremities was not noticed by Raynaud in his monograph and I think Dr. Southey was the first to draw attention to it in his account of a case in the St. Bartholomew's Hospital reports. The following case is, I think, interesting in this respect. Albert Rainham, aged five, was brought to me in March last year on account of passing blood in his urine which had then been noticed for some six weeks; the urine was of the characteristic port wine color with a little sediment, and containing a large amount of albumen, micro-

scopically there were no blood corpuscles, only the usual appearances seen in cases of paroxysmal hemoglobinuria. The mother told me that she noticed that he passed more blood when he was chilled. I took him into the hospital and it was quite characteristic of his malady that during the whole time he was in, the urine was normal, but soon after he went out he began passing blood again at intervals; throughout last summer he remained pretty well, attending here chiefly on account of nocturnal enuresis. During the winter I lost sight of him but in March the mother brought him again, saying she had not been able to bring him on account of the cold weather. She then told me that she was obliged to take great care of him to protect him from the cold. When his feet got cold he passes more blood in his urine, and if his father holds him to the fire then his water afterwards is quite clear. His feet get blue when cold, and so do his fingers round the nails and also his lips. When he is like this he seems to have pain in his stomach and he likes to go to sleep afterwards.

Now I have not myself seen this child in one of his attacks, but the mother's account is so circumstantial, and agrees so closely with the condition of the other child whom I have repeatedly seen in an attack that I cannot help thinking they are both the subjects of the same disease.

Are we warranted in saying that paroxysmal hemoglobinuria and Raynaud's disease are the same thing; I believe we are, *i.e.*, I believe hemoglobinuria is a symptom of the more general affection, and being the one that most attracts the patient's attention, the other phenomena may escape observation. I am not saying that every patient with Raynaud's disease will have hemoglobinuria, far from it, but I strongly suspect that a systematic examination of the urine after every attack would sometimes reveal the presence, if not of the altered blood, at any rate of albumen and a large quantity of lithates, a condition quite consistent with the termination of an attack of hemoglobinuria.

In almost all the recorded cases of hemoglobinuria some reference will be found to the cold extremities of the patient, in some this fact being specifically alluded to. Thus, Dr. Druitt, who published an account of his own case in the *Medical Times and Gazette*, describes himself as just like a cholera patient in the algid stage when the attack comes on, and he describes how sometimes a patch on his cheek would get cold, at others his nose or his fingers; indeed it seems to me that read by the light of modern experience his case might be regarded as one of Raynaud's disease, in which the urinary phenomena were somewhat out of proportion to the general phenomena as regards their severity. Dr. Dickinson boldly says that it is quite impossible to draw any line of demarcation between the two if they are distinct, and if, as he holds the urinary manifestations are really due to arterial spasm, then it is difficult to imagine upon what ground it can be contended that the two conditions are not one and the same disease. Another fact in support of this view is, I think, to be gathered from the fact of the jaundice; in the case which I first mentioned to you I stated that the conjunctiva were somewhat yellowish. Dr. Druitt in his account of his own case also mentions attacks of jaundice and a yellowish tint of conjunctiva has been referred to by other writers on the subject of paroxysmal hemoglobinuria. Now, of course, it is purely hypothetical, but I take it that this jaundice corresponds exactly to the hemoglobinuria, *i. e.*, that it is the result of the effect of arterial spasm of the hepatic vessels. It seems to me to be the last link that was wanting to prove the identity of the two affections. Here we have evidence on the one hand that in an undoubted case of Raynaud's disease the internal viscera, kidneys, and liver, are sharing in the morbid process, and on the other hand in a classical case of paroxysmal hemoglobinuria we have the same evidence as to the liver being affected and we have a condition of the extremities which I venture to assert is indistinguishable from that of a moderately severe case of Raynaud's disease.

There is one other point, too, in regard to the possible

connection between Raynaud's disease and hemoglobinuria to which I would draw your attention. As you are probably aware there often appears to exist a connection between hemoglobinuria and ague; what the exact nature of that connection or relationship may be, we do not know, but that some relationship does exist cannot, I think, be denied. Malaria then, and this point did not escape Dr. Dickinson's notice, may be a link between the two conditions. In one of Raynaud's cases there was a distinct history of malaria, and Dr. Druitt, probably as I have already stated, the subject of Raynaud's disease, certainly in some measure owed his malady to malaria. But I should not have ventured to bring this point forward had it not been that quite lately I have seen a case of some importance in regard to this question. Only a few weeks ago my friend Dr. Clifford Beale showed me a young man aged twenty-seven, who had been suffering from Raynaud's disease for a few weeks; he had had a very narrow escape of losing the tips of his fingers, the skin of all of which, when I saw him, was quite horny, and evidently dead. This man had enjoyed good health until he went to India about six years ago, being then in the army; whilst there he contracted typhoid fever, and shortly afterwards had a severe attack of malarial fever, towards the close of which on one evening he remembered having passed some blood in his urine; on no other occasion had he passed any blood. Since his return from India he had often had a return of his ague, but he had nothing like Raynaud's disease until the spring of this year. His parents were dead but we learnt that an aunt of his was very subject to "dead" fingers.

A CASE OF HODGKIN'S DISEASE.

BY F. FORCHHEIMER, M.D. CINCINNATI, OHIO.

Florence E., aged twelve years, admitted to the Home for Sick Children May 25, 1885.

The history states that for several years she has been suffering, off and on, from an eruption upon the head, and that about six months ago, there was noticed a swelling on the right side of her neck. This swelling was the size of a walnut when first noticed, and has steadily increased. otherwise she has been perfectly well, having had only the ordinary children's diseases, measles and whooping-cough, her infancy passing without any diseases worth mentioning.

The family history is negative; she is brought by her grandmother, who disclaims any phthisis on either side of her parents' family; her mother, however, is epileptic.

Upon examination, the child has a good healthy complexion, her color is good. On her scalp is found an eczema mardidans extending over her forehead. The posterior cervical lymphatics, as well as the anterior chain, are enlarged, and opposite the thymoid cartilage on the right side is found a tumor, giving to the whole neck a circumference of thirteen and a quarter inches at that point.

This tumor is soft, semi-fluctuating, painless, and not adherent to the tissues either above or below. It is stated that she has never suffered pain in the swelling.

All other lymphatics are normal in size; there is no enlargement of the epitrochlear or of the inguinal glands. The mucous membrane of the conjunctiva, and of the mouth is normal; the tongue is not coated, and no changes are noticeable in the pharynx. The thoracic and abdominal viscera all seem to be in a healthy condition. Temperature and pulse are normal, digestion and appetite

good, and the child apparently so little sick that for the sake of diversion, she is allowed to act as doorkeeper.

The child then seems in perfect health, with the exception of her deformed neck, and her eczema capitis.

The gland on the right side is altogether out of proportion to the intensity and extent of the skin disease, but the behavior of lymphatics in children is such, that no law can be established in this respect. The eczema and the hypertrophied gland are looked upon as cause and effect, and treatment is begun upon this basis. The eczema is treated locally, according to the method of Hebra, and calcium sulphide given in full doses. After two weeks of this treatment the neck seems to be diminishing in size, the measurement showing twelve and a half inches in circumference, and the eczema is reduced to the stage of eczema rubrum.

After the third week of treatment, however, there comes a sudden increase in the size of the glands (one and one-quarter inches in circumference) and fluctuation is so distinct that an aspirator needle is introduced with a complete negative result. The calcium sulphide is now increased to gr. ij, three times daily, and the local treatment continued.

The condition remains unchanged; the child going about her vocation until July 22d, when a small abscess begins to form upon the palmar aspect of the ball of the thumb. In a few days this is opened, and the pus examined, but nothing is found.

The calcium sulphide, not having produced any marked change after three months of continued trial, is abandoned, and large doses of Fowler's solution substituted.

On the 21st of August the child complains of pain in her neck; examination shows that the skin is somewhat reddened, the tumor more tense and decidedly larger. Whereupon, in the hope of causing suppuration, poultices are ordered, which are continued six weeks, by advice of the surgeon in charge.

About this time all the dressings are removed from the head, as the eczema is cured; but the condition about the

neck remains practically unchanged, and all hope of a termination of the enlargement by suppuration is given up. The tumor is now strapped with adhesive plaster, with the satisfactory result of very considerably reducing its size, the circumference of the neck decreasing two inches in two months.

On the 10th of December the child complains of a very violent pain in the fifth right intercostal space, which calls for an accurate examination. The developments since the first examination are as follows:

The glands of the right axilla are decidedly enlarged, and over the right apex of the lung there is found a slight change in the percussion note, tympanitic, and auscultation reveals prolonged and indistinct distant bronchial breathing.

The free border of the spleen can now be felt beyond the free border of the ribs.

A few days after the examination, a characteristic herpes zoster is developed over the region where the pain is complained of, which runs its course, and the patient gets out of bed apparently well, but more listless than before. She regains her spirits, however, and is seemingly in excellent condition.

On the 25th of January 1886, six weeks after the examination, the axillary glands, having enlarged very much meanwhile, are aspirated, and a small quantity of fluid drawn off which is filled with small indifferent cells under the microscope. The spleen, also, has continued to enlarge, and percussion shows that the liver is increasing in size.

The whole aspect of the child is changing; she no longer takes pleasure in opening the door; she spends most of her time on the bed or in a chair; her appetite is diminishing, she becomes anemic, and after the 14th of February she does not leave her bed.

On this date a febrile movement begins which lasts until the 16th day of March, *i. e.*, about four weeks, during which time the temperature ranges between 99° F. minimum, and 102½° F. maximum. The pulse begins to

grow weaker and more rapid. Over the second left intercostal space a soft systolic bruit is heard, which becomes very much more marked during the subsequent course of the disease.

The blood is now examined and found less red than normal; it seems more fluid, and, upon microscopic examination the number of red corpuscles is shown to be diminished about one-third. They do not form rouleaux; there are no crenate forms, and it is almost impossible to cause them to divide by pressure upon the cover. The white corpuscles are not increased in number, and no change can be detected in their physiological properties.

Two days after the beginning of the fever the patient has her first attack of vomiting; everything is rejected by the stomach; but the nausea is controlled after eighteen hours. The digestive organs remain in good condition for two days, when she is attacked with diarrhea for the first time, with large watery stools. The attack yields to the internal use of tannate of quinia (with opium it is true), but from this time forth diarrhea forms a feature of the disease.

The urine, which has been frequently examined, now shows the characteristics of a fever urine, and no albumin or globulin are detected at any time. An ophthalmoscopic examination gives negative results except as to extreme pallor of the discs.

The patient remains in this condition, losing strength; the glands growing larger; intercurrent attacks of bronchitis developing; the enlargement of the spleen and liver becoming more marked, and her skin assuming an almost waxy hue.

The condition of the blood now changes very rapidly. In the course of twenty days about one-half the normal number of red corpuscles is present, and the ratio of the white to the red is as 1 to 100.

On the 16th of March 1886, the patient has an attack of vomiting, her pulse becomes slow (ranging from 60 to 70, it having been from 110 to 120 heretofore), it is weaker, and the respiration becomes sighing. Thinking

that the tumor in the neck might be pressing on the pneumogastric nerve, the tumor is strapped so as to lift it away from the latter, and it is very gratifying to find the pulse come up to its normal condition within a few hours. The temperature was not affected, and we find it ranging from normal to 99° , sometimes sub-normal, as low as 96.4° , until April 17th, one other attack of like nature was observed during the course of the disease, and was remedied the same way.

The spleen is now becoming harder as well as larger and in its substance two round smooth tumors can be discovered; the surface of the organ itself being covered with smaller elevations. This can be easily felt on account of the rapid and extreme emaciation which is setting in.

On the 17th of April transfusion is resorted to, the operation being performed by the surgical assistant, Dr. H. L. Taylor; 5ij of defibrinated blood are taken from a healthy adult, and injected into the arm of the patient. The temperature rising to 101° F., which is maximum for the last week of her life, minimum being 99° .

Edema (by gravity) of that side upon which she lies the greater part of the time, has been gradually developing and now a slight effusion into the peritoneal cavity takes place. Growing weaker and weaker, the diarrhea and vomiting becoming more uncontrollable, the patient finally dies on the 22nd of April.

An autopsy was made eight hours after death by the pathologist of the institution, Dr. E. W. Walker, who has kindly furnished me with the following condensed report:

The body was that of a girl thirteen years of age post-mortem rigidity absent, the body very poorly nourished. There is a peculiarly waxy look to the skin, showing the marked anemia of the girl. Marked edema is present in both legs. On the right side of the neck the whole chain of deep lymphatic glands is greatly enlarged. The glands in the right axilla are also enlarged, as well as those in the groin. Post-mortem discoloration of the dependent portions of the body is entirely absent.

Examination of the thorax shows the following condi-

tions present: The muscular coverings of the chest are very anemic, of a peculiar grayish color, and very much softened. On opening the thoracic cavity both lungs are found adherent at their apices. In the right lung are found two small caseous nodules, about the size of a split pea. Covering the pleura of both lungs is found a small amount of recent lymph.

The pleural cavity contains a small quantity of serous fluid having flocculi of lymph floating in it. The bronchial glands are greatly enlarged,

The muscular walls of the heart are very flabby and pale. There is a large quantity of serous fluid in the pericardiac sac. A large amount of pale straw colored fluid is found in the peritoneal cavity.

The liver is very pale and very much enlarged. On section of it the large venous sinuses are found filled with white blood clots, and a large amount of fat is deposited in the inter-lobular spaces. No evidence of amyloid degeneration.

The intestines are moderately anemic. Between the layers of the great omentum is found a blood clot about the size of a small orange. The vessel from which the hemorrhage occurred cannot be detected.

The mucous membrane of the stomach is very pale and covered with a thick tenacious mucus.

The mesenteric glands are largely hypertrophied.

The spleen is very much enlarged and scattered through it is a large number of nodules, varying in size from a split pea to a hickory nut. These nodules are firm, and have surrounding them a firm thick capsule.

The kidneys show increase in the caudal substance, and are very anemic. The right kidney is double the size of the left one.

The retro-peritoneal glands are enlarged.

All the other organs in the peritoneal cavity are very anemic. The brain was not examined.

Microscopic examination of the tumors shows that they are malignant lymphata of the soft variety (Billroth).

Hodgkin's disease is of sufficient variety to make each

case observed an object of some interest. The case recorded above seems to me to present some features worthy of especial mention. To begin with, it seems almost impossible to avoid the suspicion that the disease started as a purely local one; an eczema of the scalp and face which caused enlargement of the glands of the neck. It will be seen from the history, that it was almost eight months from the time of the patient's admission to the hospital before any general symptoms began to develop. During all this time, and for years before, the child had been treated for an ordinary eczema, accompanied by more or less swelling of the glands, which—as is frequently the case, got well and then relapsed—and may lead to very serious results to the general system by way of lymphatic complications.

The *Ætiology* of this disease has not been cleared up by modern investigations. The one which seems the nearest at hand, a local irritation producing irritative changes and degeneration in the glands, seems to have been observed in the fewest number of cases (Birch, Hirschfeld, Gowers). Syphilis, which causes an almost universal implication of the lymphatics, furnishes a very small number of cases—so small as to force one to the conclusion that the occurrence of both diseases in the same subject is a coincidence.

In regard to the course of the case in question it will be seen that like some others on record, it behaved like a benign enlargement of the glands, and then quickly led to the death of the patient.

One other point of interest in the case was the effect of irritation produced by pressure on the vagus. By reference to the brief narrative it will be seen that the pulse became very slow and feeble, several times during the progress of the case, and that this was relieved by taking off pressure by strapping the tumor in such a manner as to draw it away from the supposed place of irritation. It was very gratifying to be able to verify a most simple vivi-section experiment upon the human being, although Czerny had, upon himself, established the inhibitory effect of the vagus upon the heart.

INFANTILE PALSY.—LARYNGISMUS
STRIDULUS.¹

BY MORRIS J. LEWIS, M.D.,

Physician to the Children's Hospital, Philadelphia.

(Reported by William H. Morrison, M.D.,)

GENTLEMEN.—This little child is suffering from infantile palsy. The history is that it is twenty-two months of age and that it was well until last August, two months ago. At this time after exposure to the sun, it was taken with high fever and pain on motion, as shown by the child crying when moved. There was no vomiting and no convulsions. As the fever subsided, the mother noted that the child was unable to walk on account of paralysis of the left leg. This improved to a certain extent, and in the course of a few weeks the child again began to move around, but with a decided limp. As it now walks you observe that it drags the left foot to a certain extent, swinging the leg around so that the toes shall not catch on the ground, as the foot falls on account of the weakness of the anterior group of muscles in the leg.

Infantile paralysis very frequently develops in the month of August after the hot weather of July. The statistics of Dr. Wharton Sinkler show that by far the largest number of cases occur during this month. A child, apparently well, may be taken with convulsions, vomiting, diarrhea, or high fever. There is pain on motion, and I have known this to lead to the diagnosis of rheumatism. The convulsions may pass into coma. Upon recovery from this attack, which may require from half a day to a week, the child is found to be more or less paralyzed, usually in one leg, sometimes in both. The arms may also be affected. As a rule the paralysis

¹ A Clinical Lecture delivered at the Children's Hospital, Philadelphia.

involves the anterior muscles of the leg. There is no diminution of sensation; if anything, the sensibility of the affected parts is increased. One peculiarity of this affection is that the increasing stage of the paralysis is very short: when the paralysis is discovered, it is usually at its height. Very soon the paralyzed muscles begin to waste. This is not limited to the soft parts, but the bones also fail to develop. Here we note that there is a slight difference in the length of the two limbs, the left malleolus being about the eighth of an inch higher than its fellow. Another peculiarity is that the temperature of the affected limb is lower than that of the opposite side. Sometimes both limbs are at first affected, but in a short time it is seen that one limb is more seriously involved than the other. The onset of the affection, as before mentioned, is accompanied with considerable pain. In this disease the reaction of the muscles to electricity is changed. The healthy muscle responds best to the faradic current. Almost immediately after the attack, the affected muscles fail to react to the faradic current, and with the galvanic current we obtain the so-called reactions of degeneration. In health the best response to the galvanic current is obtained when the negative pole is placed over the muscle, and the current made and broken. In this affection the reverse takes place and the contraction is most marked when the positive pole is placed over the affected muscle, the negative being on some indifferent spot; these are the reactions of degeneration. The affection is dependent upon an acute myelitis involving the anterior gray matter of the cord.

The diagnosis of this affection in the early stage is not readily made, and the treatment must be purely symptomatic. If seen at this period it would probably be taken for some other affection. The disease, however, usually comes under the observation of the physician after paralysis has appeared, especially in dispensary practice. For several years I have carefully looked for a case of this affection in the beginning stage at the dispensary of this hospital, but as yet I have not seen one

here; this is because the children are generally too ill at the onset of the trouble to be brought out of doors. Usually the diagnosis is readily made after paralysis has appeared. When the arm and the leg on the same side, as well as the trunk are affected, there may be some difficulty in differentiating between this disease and an affection of the opposite side of the brain, giving rise to hemiplegia. The face is rarely affected in infantile palsy. A few cases where this has occurred have been re-reported, but it is exceedingly infrequent. In the paralysis resulting from apoplexy, there is not this coldness of the skin, and the reactions of degeneration are wanting. In cases of brain disease there is usually secondary sclerosis of the spinal cord, and as a result there is a great increase in the knee-jerk. In infantile palsy the knee-jerk is not altered, unless the muscles of the thigh are affected, when it will be lost. In the latter affection there is not the rigidity of the muscles as seen in the secondary degeneration of the spinal cord following brain disease. There is a rigidity in infantile paralysis, but it is due to the contraction of the unaffected muscles. In hemiplegia the whole arm is stiff and the seat of rigid contractions. In infantile palsy the intellect is not affected after the acute onset. It is of the utmost importance that in the disease under consideration the diagnosis be made before much atrophy has taken place.

The treatment of a case of this kind consists largely in good nursing and proper care. The most important thing is to increase the nutrition of the paralyzed muscles. For this purpose, massage is a most important measure. The leg should be rubbed daily, not merely on the surface, but the muscles should be thoroughly kneaded and the mother should be shown how to do this. The muscles should also be exercised by electricity. Very little effect will be obtained from the faradic current, and the galvanic current must therefore be used. The positive pole is to be placed over the muscle, while the negative pole is placed in some indifferent position; the persistence of reaction to the faradic current or a return to

this condition after it has been absent, may be considered of favorable augury. Generally speaking that current which elicits the best response in any case should be employed. The internal treatment should be of a tonic, supporting character, consisting of strychnia, iron, and cod-liver oil, after the acute stage has passed. During the acute stage, cold to the spine and ergot internally are indicated. This child is at present taking one two-hundredth of a grain of strychnia three times a day. The season of the year at which this affection occurs is of importance in the prophylaxis. During the hot weather of summer, children, if possible, should be sent to the country where they will escape the extreme heat of the city. Surgical measures are sometimes required in those cases where contraction occurs, but as a rule the deformity can be overcome by manipulation.

These cases rarely recover entirely. The left leg of this child will always be smaller than the right leg and there will always be a limp. While great benefit is derived from massage and electricity, I have never seen a case in which the paralysis entirely disappeared.

LARYNGISMUS STRIDULUS—RACHITIS.

This child eight months old is brought by its mother on account of bronchitis and a "catching of the breath" as she terms it. The child holds its breath, gets blue in the face, and at these times, the inspiratory effort is accompanied by a crowing sound. These attacks have several times been followed by severe convulsions. The mother states that they recur as often as every ten minutes. They are more apt to appear when the child is lying on its back. The trouble was first noticed when the child was two months old. The mother is a full-blooded negro, but the father is a mulatto and has bow-legs and other evidences of old rickets. This is the second child; the first one, now four years of age, was treated in the dispensary for rickets. The children of mulattoes appear to be more prone to rickets than are the children of the pure negro. In ten years experience

in the dispensary of this hospital, I have rarely seen a mulatto child that did not present evidences of this disease. This may, of course, be an unfair judgment for only sick children are brought here.

This child is evidently suffering with laryngismus-stridulus. This is common in rickets. Bronchial and intestinal catarrh are also quite common in this condition. The attack of laryngismus may come on when the child is playing; it will suddenly stop breathing, usually in expiration, sometimes in inspiration, become livid and will then have several crowing inspirations and the attack is at an end. Sometimes a spell of crying or of laughing will bring on the attack.

These spells may be very severe and many of the deaths in the acute stage of rickets, that is, in the first three years, are due to this cause.

As you know, in rickets there is a deficient deposit of the salts of lime and as a result the bones are soft and easily bent. This same softening occurs in the bones at the posterior portion of the skull. In this situation the softened bone can be detected with the finger. Authorities assert that laryngismus stridulus is due to the presence of these craniotabes, or to some intracranial deposit the result of the rachitic process. These spots of softening are nearly always present in children who present these attacks, and rachitic children who do not have these craniotabes, are not as subject to laryngismus-stridulus. Carefully examining this child's head, I detect some of these soft spots on the left side. The slight pressure which I have made serves to bring on a mild attack of spasm of the larynx. The child has the square head of rickets and the fontanelle is moderately open. The ends of the ulna and tibia are moderately enlarged and there is some beading of the ribs, but as yet no pigeon-breast deformity. This latter condition is dependent on the softening of the ribs. With each inspiration a vacuum is formed within the chest and the pressure of the external air tends to force in the ribs at their junction with the cartilages and to cause protrusion of the sternum.

The pressure of enlarged bronchial glands may also increase the tendency to laryngismus.

But in the majority of cases under one year of age the affection is probably due to the craniotabes. The percussion note in this case is clear all over the chest with the exception of the portion between the scapula where there is distinct impairment of resonance; in all probability due to enlargement of the glands in the posterior mediastinum. It is difficult on account of the crying of the child to obtain any satisfactory information from auscultation. The child has a loose cough, but does not expectorate anything, although it occasionally vomits a large quantity of phlegm. Children rarely expectorate anything, they raise the mucus into the pharynx and then swallow it.

Again, in these cases of rickets the abdomen is usually large, as a result of increase in the size of the liver and of tympanites due to intestinal catarrh. The presence of a catarrhal process with profuse secretion in a child that is illy nourished, should at once awaken a suspicion of rickets.

Rickets is usually the result of some defect in the mother's milk. It is either not of the right quality, or she has had children too fast, or has nursed them too long, or there is something wrong in the family history.

Now with reference to the treatment. A child who is taken with a sudden, severe attack of laryngismus should be at once plunged into hot water, as hot as can be borne by the elbow. After remaining in the bath ten or fifteen minutes, it should be taken out, wrapped up and rubbed dry. In the meantime other measures may be used. An injection of five grains of chloral hydrate in solution may be given by the rectum. If the child can swallow, chloral and bromide of potassium may be given by the mouth. With these measures cold to the head may be employed. As the attacks may be brought on by pressure on the back of the head, care should be taken that the child does not rest on the back of the head while in bed. The nourishment of the child is to be looked after. If

the mother's milk is at fault some preparation of milk should be given. For this purpose the preparation, recommended by Dr. John Forsyth Meigs, may be employed. This consists of equal parts of cream, milk, lime water, and arrow-root water. If desired a solution of sugar of milk may be substituted for the arrow-root water.

For the general condition, cod-liver oil with some preparation of lime, as the lacto-phosphate, should be employed. The syrup of the iodide of iron or some other easily assimilated form of iron, such as the pyro-phosphate, may be advantageously combined with this. The child should not be allowed to walk. If deformity has occurred it can usually be overcome by pressure and manipulation, if the matter is attended to while the bones are still soft, otherwise operative interference may be necessary.

Current Literature.

1. HYGIENE AND THERAPEUTICS.

Widerhofer: The Treatment of Bright's Disease, and Uremic Phenomena Following Scarlatina. (*Rev. Mens. des Mal. de l'Enf.* [from *Allg. Wiener Med. Ztg.*, 1886, No. 3], May, 1886.)

Bright's disease in children is almost always the result of an antecedent scarlatina; uremic accidents after scarlatina are not infrequent. Uremia is the more to be feared as the edema is considerable and the urine scanty; an attack usually being ushered in by vomiting. When Bright's disease attacks a child already suffering with scarlatina, the child suddenly becomes pallid and desquamation is arrested. Somnolence more or less decided, follows, and then a series of convulsions, which are usually severe. Several convulsions may occur within twenty-four hours, but the convulsive stage does not usually exceed that period. After this the child usually begins to

urinate and edema is perceptible. In some cases anasarca, pleurisy, pericarditis, etc., may form additional complications. The prognosis is very unfavorable, only about half the patients recovering. Should bronchitis be a complication with uremia, the prognosis would be a very grave one. The treatment of acute attacks of uremia consists in the use of hydrate of chloral by the rectum, from one-half a gramme to a gramme and a half being given at a dose, according to the age of the patient. Should there be no pulmonary complication inhalations of chloroform will be of service. Laxatives will usually be indicated, but diuretics are to be avoided, though digitalis will sometimes be serviceable in moderate doses. Should there be passive hyperemia diuretics may be freely given, for example, the acetate of potash in doses of one to three grammes. Latterly warm baths and pilocarpine has also been advised, but the latter is uncertain in its effects and may even be dangerous. Warm baths at a temperature of 28° to 29° R. give very good results, especially if the child is warmly wrapped up after leaving the bath and made to perspire freely. Toward the close of the disease the diet should be quite a liberal one, and iron and quinine should be given in addition. A. F. C.

Garnett: Inhalations of Cocaine in Whooping-Cough. (*Jour. Amer. Med. Ass'n.*, Oct. 9.)

Dr. A. Y. P. Garnett had under his care two children, aged two and five years, suffering from whooping-cough. When seen for the first time one was in the third, the other in the second week of the disease. Many of the ordinary and some of the extraordinary remedies had been used without in any degree mitigating the severity of the paroxysms. A six per cent. solution of muriate of cocaine in chloroform was ordered and ten minims dropped into a wine glass, which was made warm by tepid water. Over this the patient's mouth was placed and the patient made to inhale the vapor, the mother holding the child's nostrils. After a few trials there was not any difficulty in having the inhalations practiced every four hours, or immediately before or at the outset of a threatened paroxysm. This treatment arrested or shortened the paroxysm but did not disturb the usual duration of the disease.

Reynolds: Treatment of the Asphyxia in the Newborn. (*N. Y. Med. Record* Sep. 25.)

Dr. E. Reynolds describes the following method for resuscitating asphyxiated infants: the child lies on its

back with its head downward, upon the operator's forearm held nearly perpendicularly to the floor, and is retained there by his fingers, which are hooked over its shoulders. In this position the child's arms fall downward by the sides of the head, and their weight, aided by that of the thorax itself, at once draws the ribs in position of complete expansion of the chest. If now the thorax be compressed against the forearm by the other hand and suddenly released a most satisfactory respiration is the result." This method combines the advantages of an afflux of blood to the brain with a most efficient artificial respiration and an easy escape of fluid from the trachea.

Rossbach: The Effect of Papayotin upon Diphtheria, Croup, and Croup Membranes. (*Jahrb. f. Kinderh.*, [from *Deutsches Arch. f. Klin. Med.*, Bd. xxxvi., H. 3 and 4], xxiv., 3.)

The original statement of the author was that solutions of papayotin (1:20) would dissolve croup membrane which was immersed in it, in an hour into small particles, and that after six hours these particles would be entirely dissolved. Stumpf reports, in reply to this statement, that he has immersed croup membrane in a 1:15 solution of papayotin and has found that it required twenty-seven to thirty-nine hours to dissolve it. Rossbach's reply to this is that there are many poor preparations of papayotin in the market and that Stumpf must have experimented with some of them. Even good specimens quickly lose digestive force by self-digestion.

In order to be effective in practice, the solution should be applied to the parts every five minutes, a few drops being placed upon the tongue or in the nose. Very young children may be allowed to suck a napkin which is moistened with a sweetened solution of the papayotin, or it may be inhaled after atomization. The author has repeatedly seen cases in which this plan was carried out and in which the membrane became dissolved in two or three hours. The reason why his critic (Stumpf) has not succeeded better with papayotin is, it is thought, because he has neglected to carry out the directions which have been laid down for its use. Though the false membrane of croup and diphtheria may be loosened by this means, it does not follow, nor does Rossbach affirm it, that the disease itself will necessarily be influenced by it. Rossbach's assistants have reported, however, that in cases in which they have used the papayotin there was a decided decline

in the temperature. The author believes that he can assert with some assurance that if this substance is properly used it will obviate any necessity for tracheotomy.

A. F. C.

An Alleged Successful Treatment for Tubercular Meningitis. (Editorial.) (*Med. Record*, Oct. 16.)

In France tubercular meningitis destroys annually 25,000 children, while in New York City it makes up about two per cent. of the death rate.

Iodide of potassium, cold and counter-irritation to the head have been the remedies hitherto relied upon. Several quotations are made from foreign journals, where records of successful cases are given by the use of iodoform, applied externally. Some use inunctions of the ointment, others a solution in collodium, one to fifteen. Dr. F. W. Waring, who has had the best results, shaves the head and anoints it with an ointment composed of iodoform one gramme, vaseline five grammes, the head being then covered with an impermeable cap. The application is made twice daily.

Wohlfarth: Poisoning of Young Children. (*Kansas City Med. Index*, Aug.)

Dr. L. A. Wohlfarth reports the following cases:

By Fowler's Solution.—A child four years old was given a teaspoonful of "Fowler's Solution," instead of paregoric. When seen one hour afterward, pulse rapid and feeble; complained of pain in stomach; facial expression very anxious. About an ounce of freshly made hydrated sesquioxide of iron was given and in an hour the symptoms improved and at the end of three hours the child seemed well. The bowels were constipated for four days.

2. *By "Piso's Consumptive Cure" (Belladonna).*—A girl three years old took about two ounces of "Piso's." When seen, two hours afterward, was in convulsions; forehead flushed; pupils dilated; respiration twenty-five or thirty; pulse very rapid; unable to swallow. Injected hypodermically one-half grain of apomorphia, which produced vomiting, but did not ameliorate her condition. One drop of Magendie's Solution was then injected every hour. After four doses the pupils contracted and the convulsions ceased. Recovered.

3. *By Nux Vomica.*—A child one year old was given a teaspoonful of a mixture containing ten drops of (tr.) nux

vomica to the dram, instead of a cough medicine. When seen, three hours afterward, it was in tetanic convulsions, almost pulseless. No medicines were given. It died in a short time.

4. *By Opium*.—A twelve-year-old girl had been given, by her father, a dose (amount not stated) prepared by himself, by putting fifty cents worth of opium into a pint of whiskey. When seen about four hours afterward, was in complete stupor; pulse very rapid and feeble; respirations five or six per minute; pupils contracted. Five drops of fluid extract belladonna (being the only preparation at hand) was injected hypodermically every half hour until three doses had been given; after which the respirations became more frequent and the pupils dilated slightly. Electricity was applied and after six hours she was considered out of danger.

5. *By Whiskey*.—A boy two years old drank half a teacupful of whiskey. When seen, two hours afterward, was in convulsions; skin cold and clammy; pulse rapid; pupils dilated. Vomiting was produced by sulphate of zinc, which caused the convulsions to cease for a time, for they returned and were partially controlled by bromide and chloral but returned as soon as their effect wore off. Death occurred twelve hours after taking the whiskey.

Owen, S. H. : Chorea Treated by Arsenic Producing Bronzing of the Skin. (*Cin. Lancet Clinic [Med. Chronicle]*, Sep. 4.)

A well grown girl ten years of age, with a clear fresh complexion, had been suffering off and on for the past fifteen months with chorea.

A maternal aunt had rheumatism, and a cousin had suffered with chorea. The patient had never had rheumatism. The heart was free from murmurs and any abnormality. "Fowler's Solution" was ordered in doses of nearly four minims three times a day after meals. About a month and a half afterward the choreic movements had almost ceased, the dose was increased to five minims. Two weeks later the movements were limited to the eyebrows and mouth. A systolic murmur was now heard in the axilla and "at angle of scapula, but not over the apex, which was situated in the fifth space over a line with the nipple. Pulse 104. Bronzing of the nipple, armpits and neck was now noticed, which, her mother said, had been going on for a month. The medicine was continued. At the end of another month the bronzing was of a deeper shade, but it had not attacked the face or

other uncovered portions of the body. No tenderness of abdomen or epigastric pain. Pulse 130, thought to have endocarditis and was admitted into the hospital. She remained one month, at the expiration of which the chorea had disappeared and the bronzing was less distinct; the pulse was still frequent but of good strength. The heart murmur still persisted but was heard at the apex; the second pulmonary sound was also accentuated.

Hunt says, in his book on the treatment of skin disease, that children above five years of age bear as large doses as adults, and that between eight and ten years, girls especially, often require double or treble the quantity. He says bronzing may occur, which he calls a faint form of pityriasis.

Dr. Cheadle is quoted as having pointed out this effect of arsenic and that it resembles the bronzing in Addison's Disease.

Study, J. W.: Hypodermic Injections of Morphia in the Convulsions of Children. (*Indiana Med. Journal*, Aug.)

A child twenty-two months of age was attacked with convulsions and had them for half an hour before it was seen. The child was then immediately put in a bath of warm water for twenty minutes, and bromide and chloral administered freely at intervals of fifteen minutes. This treatment was persisted in for two hours without relief. Chloroform by inhalation was then given, with the effect of controlling the convulsions when under its influence, but returning when it was withdrawn. One twenty-fourth of a grain of morphia was now given hypodermically, and in ten minutes was followed by general relaxation, and complete and permanent arrest of the convulsions, which had lasted three hours. The morphia, produced sleep for two hours, without any dangerous symptoms following. Measles and broncho-pneumonia were sequels to the convulsions.

Washburn: The Administration of Cod-Liver Oil to Children and Infants. (*Med. Record*, Oct. 23.)

In children milk is taken into the mouth and held there, and a spoon is dipped in milk and then the oil is poured into it. Just as the oil is taken into the mouth, the milk should be swallowed and then another sip of milk taken. Infants, if interrupted in nursing, readily swallow a teaspoonful of the oil and then proceed nursing as if nothing had happened.

Widerhofer: The Treatment of Pleuritis in Children. (*Rev. Mens. des Mal. de l'Enf.* [from *Allg. Wiener Med Ztg.*, 1886, No. 3], May 1886.)

The younger the child the more difficult of diagnosis is pleurisy and the disease may be entirely overlooked without a very minute examination. After the exudate has formed the diagnosis is somewhat less difficult. Then the child breathes more superficially, there is febrile movement and a cough, which may last several days. The frequent and superficial respiration are the more important indications in making the diagnosis. If there is no exudation in the pleural cavity, the child will lie upon the diseased side. As to the physical signs, at first there is general bronchial respiration, gradually there is dullness on percussion and diminution of the respiratory murmur. Should the exudation be abundant the diagnosis may be readily made, but should it be limited to a small area at the base of the pleura, the diagnosis will be difficult. The sensation which is yielded by percussion is believed to be of greater assistance in forming a diagnosis than the information which is obtained by auscultation.

The prognosis of this disease among children is usually favorable. Thoracentesis will be necessary in case the exudation is not absorbed, and especially in cases in which it is so abundant as to occasion troublesome dyspnea to the patient. Purulent accumulations rather than serous or sero-fibrinous ones cause trouble of this kind, and can usually be correctly diagnosticated in those cases in which an exudation persists longer than fifteen days, the temperature reaching 39.5° or 40° C., morning and evening, while the child steadily emaciates. The crucial test is, of course, an exploratory puncture.

The treatment of purulent pleurisy by aspiration is not followed by the best results, for, in a few days, another deposit of pus has taken the place of the former one. The author believes that it is best treated upon the same principle is carried out which is used in treating an abscess. An incision, sufficiently large, is made between the fifth and sixth ribs, the pus is evacuated, a drainage tube is introduced and an antiseptic dressing applied. The patient is usually cured in from two to three weeks. Should the operation be deferred until an advanced period of the disease the pleural cavity must be washed out systematically with a solution of salicylate of soda or of thymol. Phenic acid solutions are dangerous, and numerous cases of poisoning have followed its use. Un-

less the operation is performed early there will be deformity of the thorax. If the purulent deposit is left to itself it may point somewhere upon the abdominal or thoracic wall, and will be revealed by swelling, fluctuation, and inflammatory edema. In most of the cases of this character, there is a fatal issue. A. F. C.

Engelmann: The Antiseptic Action of Vinegar, and its use in the Treatment of Diphtheria. (*Rev. Mens. des Mal. de l'Enf.* [from *Centi. f. Klin. Med.*, 1886, No. 14]. June 1886.)

The results which have followed the use of vinegar in the author's treatment of diphtheria has been more satisfactory than by any other means. As a gargle he uses it in the strength of 1 to 4 of water, in spray 1 to 2 or 3 of water; for local applications it is used undiluted. Its antiseptic effect is more satisfactory even than a five per cent. solution than carbolic acid, a fact which was demonstrated by its power of arresting the development of micro-organisms in culture fluids, which was not accomplished by the five per cent. carbolic acid solution.

Hitherto this substance has been overlooked as a means of disinfection, even Koch having failed to discover its value. It is of especial value for the bucco-pharyngeal cavities being sufficiently energetic in its action without being irritant. Besides its taste is not disagreeable, and it is not poisonous if absorbed in large quantities. It can be obtained everywhere and is also cheap, two qualities which are not unworthy of consideration. A. F. C.

Hammond: Congenital Absence of the Faculty of Co-ordination. (Proceed. N. Y. Neurological Society.) (*Med Record*, Oct. 23.)

A boy four years of age was brought to the clinic because of his inability to walk. Born at full term, labor natural, he appeared to be perfectly healthy, but shortly became sick and continued more or less ill for six months. His physician diagnosticated colic. Since recovery from this attack he had not had any sickness. He was well formed, the muscles of the limbs were well developed for a child who did not walk; muscular reaction to both electric currents was normal; the reflexes were normal; the special senses were normal. There was not any history of syphilis.

The only apparent reason for his inability to walk was want of power to retain his equilibrium. He could crawl on hands and knees very well unless he went too fast, when he would fall and always to the right. He could

stand, holding to a chair, and walk pretty well, if held upright. He widened his base in standing. There was also incoördination in the upper extremities. Dr. H. had not decided whether there was congenital absence of sensory tract in the cord or cerebellar disease. Dr. Rudirch mentioned having seen two cases resembling Dr. Hammond's. Dr. Brill thought such cases were not uncommon among idiots. Runeff had reported a similar case and had found a rudimentary cerebellum. Dr. Brill thought the diagnosis lay between locomotor ataxia and static ataxia. He thought Dr. H.'s case to be the latter, due to rudimentary cerebellum.

Moncorve: Antipyrine in the Treatment of Diseases Among Children. (*Rev. Mens. des Mal. de l'Enf.*, June.)

The author observes that there are certain antipyretics which do not seem to be adapted for use among children, whether on account of intolerance, repugnance which cannot be overcome by the child, or from a dangerous toxic effect. Agents of this character which are mentioned are quinquina, digitalis, tartar emetic, veratrine, salicine, salicylic acid, salicylate of soda, phenic acid, pilocarpine, aconite and kairine. Resorcine, and antipyrine do not have these objections and both have been used and approved in the treatment of children's diseases by the author. He began the use of antipyrine in 1885, and reports its effects in more than 100 cases of bronchitis, broncho-pneumonia, tuberculosis, acute malarial poisoning, rheumatic fever, and suppurative fever. The dosage varied between three and twenty-five centigrams during the twenty-four hours, the quantity depending upon the age of the patient rather than upon a regard for tolerance. The result of the author's experience demonstrates that antipyrine is the most powerful and the least dangerous of any of the antipyretics yet used in the treatment of the diseases of children. If it is given in the course of inflammatory troubles of the respiratory apparatus, defervescence which lasts for a varying period, results with improvement of the local condition. In tuberculous subjects its use is often followed by a favorable modification of the general nutrition. In the treatment of acute malarial poisoning the author found it effective and satisfactory, also in acute rheumatic affections and in surgical septicemia.

Defervescence is produced with almost mathematical regularity by this drug in children of all ages, this condi-

tion lasting from six to twenty-four hours. When the fever returns it is scarcely perceived by the patient, and in this respect antipyrine acts very differently from phenic acid, kairine, and thalline. The only accident which the author saw from the use of antipyrine were sweating and vomiting, and in one case a condition of adynamia followed the administration of very large doses. The only effect which it produces upon the circulatory apparatus is a slowing of the heart's action. If sweating is produced the urinary excretion will be correspondingly diminished. The quantity of urea is sometimes diminished, but no albumen has ever been found. The drug was given by the author by the mouth, by the rectum and hypodermically, the last mentioned method being the approved one.

Zennis: The Treatment of Broncho-Pneumonia in Children with Iodide of Potassium. (*Rev. Mens. des Mal. de l'Enf.*, June, 1886, and *Arch. di. Pat. Inf.*, May 1886.)

Since the year 1877 the author has used this salt as a remedy for broncho-pneumonia among children from six months to five years of age with the following results:

1. It was especially useful in primary-broncho-pneumonia, its action being more decided at the beginning than during the latter stages of the disease. Its beneficial action is not so apparent in those forms of the disease which follow whooping-cough or laryngitis stridulus.

2. It is especially useful when given to children who have good constitutions, but it rarely succeeds with those who are debilitated and cachectic. It is also more efficient with children who are between the ages of one and five years than with those who are older.

3. Its effect is more prompt and certain in the sub-acute than in the acute form of broncho-pneumonia.

When this salt is given in doses of half a gram to a gram, one part to four of water, the dose varying with the age of the child, it will often lower the temperature one or two degrees in the course of two or three days, diminish the frequency of the respiration, relieve the cough and facilitate expectoration. If in the course of three days a decided change has not been effected it will not be useful to continue the drug. It is not pretended that this drug is a specific for broncho-pneumonia, but it will be found exceedingly useful in many cases and is worthy of trial.

A. F. C.

Cazin: Influence of Sea-baths on Scrofula in Children. (*Jour. de Méd.*, July 18.)

Notwithstanding the increased care and study which have been devoted in recent years to children and the diseases which are peculiar to them, tuberculosis and scrofula make great havoc in their ranks between the periods of weaning and puberty. As a remedy for this evil the author proposes additional institutions where sick children can be received and treated; such places to be located upon the sea-shore, and the treatment to consist largely of sea-baths. The author has been in charge of such an institution, for scrofulous children and observed in the method of treatment which was adopted a physiological effect, in the reaction from the bath; a medicinal effect in the absorption of the salts by the skin and during respiration, an hygienic effect in the respiration of the pure air of the sea. As compared with treatment at mineral springs the method which is advocated produces results quite similar to those which are obtained at chloride of sodium springs, with the advantage that the former is more profound and more durable. As to contra-indications to treatment by sea-baths, the author considers that diseases of the circulatory organs, visceral diseases, phagedenic ulcerations and those which are associated with hereditary syphilis may be considered as such, though in many cases the contra-indication will only be of temporary duration. The question as to the length of time during which treatment should be continued is an important one. Of 41,783 cases which have received such a course of treatment at various hospitals the author finds that complete cure resulted in 70 per cent. of those cases in which the treatment was prolonged indefinitely; $42\frac{5}{10}$ per cent. were cured in which the treatment occupied 90 days or more $26\frac{8}{10}$ per cent. were cured of those who remained from 30 to 45 days.

Hospitals of this character were first established in England nearly a century ago, and now there are many of them scattered along the coast of that country, of France, and of Italy.

A. F. C.

Murrell: The Cure of Infantile Paralysis. (*Arch. di Pat. Inf.* [from *Paris Méd.*], May.)

During the febrile period the child should be left quietly in his bed and in a room which is somewhat dark. A mild watery purgative may be given, the diet should be a light one and composed of milk and peptones. After

the paralytic period has come on the nutriment should be more substantial. Revulsives may be used upon the vertebral column in the shape of tincture of iodine or small blisters. Internally, pills of calabar bean may be given, each pill containing four milligrams of the extract, and three to eight being given daily. This drug should be given during several weeks, and with it may be given phosphorous in doses of one milligram or less. Massage may also be begun after paralysis has been fairly established and continued several weeks or even months, with short periods of interruption. The applications should be of only a few minutes duration, but may be repeated several times during the day. At the same time the galvanic current may be used and when the condition of the muscles has begun to improve the interrupted current may be substituted. If cerebral symptoms appear a weak current may be passed through the head by means of a large sponge electrode. The internal treatment should include cod-liver oil, hypophosphites, pulverized beef, and a general tonic regimen. The patients must be kept warm at all times and had better be clothed in flannel from head to foot. During the night bottles of hot water should be placed near the paralyzed side. Sea-baths are advocated, also resin-baths, which may be prepared by adding sixty grammes of resin to a sufficient quantity of water. Electric baths may also be used, but they are not so effective as the local application of the current. A. F. C.

Zinnis: The Cure of Chronic Diarrhea in Children. (*Arch. di Pat. Inf.*, Nov.)

This form of disease is especially prevalent during the first two years of life and is mainly due to errors of diet, notably to premature weaning. The patient will have five or six stools in the twenty-four hours, liquid, mucoid, yellowish or greenish in color, and mingled with curdy matter if the child is nourished at the breast or with undigested food of other character if weaning has been accomplished. The odor is offensive, the discharges may contain bloody mucus, and tenesmus may be a prominent symptom. Vomiting is rarely a symptom. The child becomes restless and fretful, the sleep is disturbed, the abdomen swells and becomes painful to the touch, and there are intermittent paroxysms of colic. In many cases the liver becomes enlarged on account of fatty degeneration. Slow and progressive emaciation is a phenomenon which is quite characteristic of the disease, the skin be-

comes pallid and waxy in appearance, the muscles atrophy, the adipose tissue disappears, the belly becomes tympanitic, and the feet become edematous, while fever is usually present. The treatment must be principally dietetic, with the use of certain drugs as auxiliaries. If the milk of the mother or nurse is at fault, treatment to remedy this difficulty will be indicated and may be all that will be required. If the child is fed from a bottle the most rational treatment will consist in securing a suitable nurse. If artificial foods (rice, flour, etc.,) have been used, they must be given up and breast milk substituted, with, perhaps, the addition of cow's or goat's milk, several times during the day. For medication small doses of bismuth or bismuth and lime water may be given or bismuth with infusion of calumbo. Should the diarrhea prove obstinate the diet must be restricted to cow's milk which must be fresh and warm, and for two days may be given every two hours, day and night, two tablespoonfuls being given at a time; on the third day three tablespoonfuls at a time may be given. After the fourth day it may be given at longer intervals but in larger quantities. After three or four weeks a little pulverized rice with milk may be given during the day, but milk alone must still be given at night. Such treatment will generally produce the desired effect, but in some cases it may be found useful to take ass's milk instead of cow's. Should convalescence be slow, the juice of beef, in small quantities, may be added to the diet. Other astringents which may be used in addition to those which have been mentioned are pernitrate of iron, extract of rhatany, of cascarilla, or of campeachy wood. Sulphur baths and, above all, country air may be added as useful means in the treatment of the condition.

A. F. C.

Frühwald: *The Treatment of Chorea.* (*L'Union Méd. des Can.* [from *Rév. des Mas, de l'Enf.*], July.)

In 1872 Eulenburg and Smith proposed to substitute for arsenic administered by the mouth, hypodermic injections of Fowler's solution in the treatment of chorea. The preparation which was used by the author was Fowler's solution dissolved in an equal volume of distilled water. The quantity used was in all cases very small (exact amount not stated, probably from one to three minims), varying with the age of the child and the intensity of the disease. The injections were made deeply and in alternate limbs on alternate days, the limb having first been

washed with thymol. The effect of treatment by this means was compared with the treatment by the mouth in a number of cases which were studied side by side. By the mouth five drops per day were given in seventy grammes of distilled water and ten grammes of syrup. This was increased by one or two drops per day until the daily portion was twenty-four drops. Twenty-three children between five and fourteen years of age, received the hypodermic medication while one was treated by the mouth. As to etiology, in nineteen of the cases the exciting cause was supposed to have been fright or some other psychic agent, in two there was recurrence after previous attacks in which arsenic had not been used as a means of treatment, in three there was a history of acute articular rheumatism without cardiac complications. The results of this treatment were considered preferable to the method of dosage by the mouth. Improvement began to be noticed after a week's experience, and in most of the cases the cure was complete by the end of the third or fourth week.

A. F. C.

Bloebaum: New Method for the Cure of Diphtheria with the Galvano-Cautery. (*Arch. di Pat. Inf.* [from *Deutsche Med. Ztg.*], July.)

The author has experimented upon animals with this means of treatment and has been successful. He, therefore, believes that the galvano-caustic wire ought not to be regarded as an exciter of inflammation, but as a powerful antiseptic and as an energetic stimulant to the regeneration of tissues in diphtheritic processes. It may be applied to diphtheritic ulcerations either with or without the use of cocaine, the pain in the latter case not being very severe. The parts which are cauterized represent sterile territory, that is a surface upon which fungi and bacteria will not flourish. After this treatment fever will disappear in a short time, and no phlogistic symptoms will result. The operation can be done without an assistant, the cautery being introduced through an oral speculum. The light from the cautery will also give an opportunity of examining the throat very minutely. Advantages which are also claimed by the author for this plan are that it enables one to dispense with general treatment, and even to treat cases in out-patient departments.

A. F. C.

Heyder: Treatment of Diphtheria of the Pharynx.
[Abstracted.] (*Rec. Mens. des Mal. de l'Enf.*, July, 1886.)

This author states that the harmful effect of chlorate of potash upon the stomach when administered for this disease may be neutralized by the use of hydrochloric acid. The combination which he has found efficient is a four per cent. solution of chlorate of potash with a two per cent. solution of dilute hydrochloric acid. To these a small quantity of syrup may be added. This mixture should be given hourly without interruption, in doses which should be regulated by the age of the child, until the false membranes are expelled. Instead of combining the chlorate of potash and the hydrochloric acid, they may be administered separately if that seems preferable.

In cases in which the fever is intense it is recommended that cold applications be made to the neck, or even to the entire body, after the method of Priessnitz. The depressing effect of the chlorate of potash upon the heart may also be opposed by the free use of rich wines. Gargling with a 1 to 3000 sublimate solution should also be practised.

A. F. C.

Stepp: Treatment of Diphtheria with Iodide of Potash.
[Abstracted.] (*Rev. Mens. des Mal. de l'Enf.*, July, 1886.)

The author asserts that in cases in which this drug is given systematically from the outset of this disease its results are favorable. The salt is rapidly decomposed within the body, and the liberated iodine penetrates the blood, the glands and the different fluids of the body; is combined in different ways with albuminoid molecules and probably with bacteria. The result of these combinations is a medium or media which are not at all favorable to the development of micro-organisms. The dosage should vary with the age of the patient and also with the severity of the disease. To children from one to three years of age a dessertspoonful of a two or four per cent. solution may be given hourly. Cases are reported in which the patients received without consequent iodism, and without digestive disturbance or disorder of the nervous system, ten, twenty or even fifty grammes of the salt in the course of their sickness.

A. F. C.

2. MEDICINE.

Virchow: Croup and Diphtheria. (*Jahrb. f. K.* [from *Berl. Klin. Hoch.*, Nov. 9, 1885], xxiv., 1 and 2.)

As to the historical part of this subject Rokitansky included under the term croup all possible forms of inflammation in mucous membranes in which a false membrane was formed, and later it was even applied to the common form of pneumonia. It had originally referred only to the acute affection of the larynx. Bretonneau recognized this affection, but he regarded that form of laryngeal inflammation in which false membranes formed as a different disease, and gave to it the name of diphtheritis.

Virchow himself, as early as 1847, classified the affections which involve the surface of mucous membranes, as catarrh, croup, and diphtheritis, and defined the latter at that time as a gangrenous process which goes on within the tissue, and observed that only by this means is the false membrane obtained, parts of the mucous membrane being expoliated, and an ulcerated surface which is more or less extensive being the result. He would still adhere to his former opinion. The parasitic organisms which were found in the membranes of this disease he, at that time, considered only as coagulated fibrin; such organisms are, however, not found in very large numbers in croupous membrane. It is now admitted that croup and diphtheria in spite of their anatomical differences, have the same cause, the various processes being only modifications of the general diphtheritic process.

Whatever this process may be it is not the cause of all cases of fibrinous laryngitis and tracheitis, for the same phenomena may be produced by chemical irritation. As to croupous pneumonia the term is entirely a misnomer. The form which complicates croup is broncho-pneumonia. An important question to be considered is—are there genuine cases of fibrinous croup in which there is no trace of diphtheria?

As an anatomist Virchow could answer in the affirmative, since there have been cases of extensively diffused fibrinous croup in which there was not a diphtheritic patch, nor loss of substance of any kind in any part, and which in other respects gave the history of diphtheria. Both these important factors being absent, however, one is not justified in referring to the case as one of present or

past diphtheria. On the other hand there are also cases of diphtheria of the larynx without fibrinous exudation. That which is commonly considered pseudo-membrane is not croup membrane but the firmly attached gangrenous superficial layer of the mucous membrane.

A diphtheritic process of such a character is found in great intensity in the trachea in the course of variola. There is also a third variety of cases in which diphtheritic and exudative conditions occur at the same time. Formerly he had denied that fibrinous exudations in the pharynx ever occurred; now he admits this and also that there may be a combination of diphtheritic and fibrinous pharyngitis, but the latter is a rare occurrence. This occasional coincidence does not justify one, however, in regarding the two processes as identical, and each should be judged upon its own merits. As an illustration, when the diphtheritic process occurs in the course of puerperal fever, as it progresses fibrinous peritonitis is excited, but this would never justify one in saying that peritonitis is a diphtheritic affection. This differentiation is of great importance in reference to the air passages on account of the occurrence of diphtheritic laryngitis and tracheitis of an ulcerative character. Therefore Virchow draws a distinction between the anatomical and the clinical stand-points in this disease.

In discussing the paper (which was read before the Berlin Medical Society) Henoch observed that clinicians *did* recognize that the diphtheritic process was a necrotic one, and as to the etiology of the disease they considered that infection or infectiousness was the factor which distinguished diphtheria from fibrinous croup. He believed in the existence of fibrinous croup, because he had seen it, but he also believed that the greater number of all the cases of croup are of a diphtheritic character. While fibrinous croup and diphtheria signify different anatomical processes they may be produced by the same etiological factor. Also while the process which Virchow terms the diphtheritic one may be produced by the specific contagium of diphtheria, it may also be produced by that of scarlatina, measles, variola, etc., which are unquestionably different diseases. Confusion has been produced among clinicians and others by the use of the term diphtheria and its derivatives. A better term is *cynanche contagiosa* which was proposed by Senator.

With regard to prognosis also, apart from the consideration of the narrowing of the air passages by the false mem-

branes, the question of infectiousness is a far more significant one than that which refers only to erosions, ulcerations, or even more extensive local disturbances in the throat.

Virchow, in concluding, admitted that much work remained to be done in classifying the different forms and varieties of diphtheria and in adopting a terminology which should be at once simple and comprehensive. He also considered that the fact that the diphtheritic process is an ulcerative one, is of greater significance than that it is infectious.

A. F. C.

Waxham: A Membranous Cast of the Trachea and Larynx Retained for Several Months. (*Chicago Med. Jour. and Exam.*, Oct.)

In April 1886, a child, aged nine years, swallowed a hedge thorn; she at once began to suffocate and twenty-four hours after, when at the point of death, the trachea was opened by Dr. McDavitt and a tube put in. She was very comfortable and perfectly relieved by this procedure. After some time an attempt was made to remove the tube and allow her to breathe through the larynx, whenever it was attempted she appeared unable to draw any air through the larynx, so that the tube had to be reinserted affording her immediate relief. She was then brought to Dr. Waxham, several months having elapsed since the accident. A laryngoscopic examination showed that the larynx was apparently closed, but digital examination revealed a very small opening through which a probe was passed and then the smallest size intubation tube followed by the larger sizes up to the largest. The largest size could not be pushed to its full length on account of the end striking the tracheotomy tube; the child now vomited and ejected the intubation tube and a perfect cast of the larynx and trachea. The largest size tube could then be easily introduced, and as it reached the tracheotomy tube the latter was withdrawn, and the former inserted its entire length. The child was immediately comfortable and remained so. She returned home and Dr. McDavitt removed the intubation tube after a few days.

Drury: Infantile Eczema. (*Cin. Lancet and Clinic.* Sep. 25.)

Eczema is a simple, non-contagious, catarrhal inflammation of the skin. In 3,000 cases of all ages reported by Bulkley, 676 (nearly one-quarter) were under five years

of age. In 5,000 cases reported by White there were 1890 in the first ten years of life, and of these 1488 (over 30 per cent. of the whole) occurred in the first year. Dr. Drury thinks that the chief cause lies in the treatment that the child receives during the first year of life. At the very beginning it is annointed with fats often rancid or containing acrid vegetable oils; rubbed with soap containing an excess of alkali; plunged into water of any temperature; briskly rubbed; finally put in a coarse blanket and dried with a rough towel. Later the bandages, cloths, and woollen clothes are all contrived to over-heat the skin; irritating discharges are allowed to remain in contact with the skin; the frequent regurgitation of curdled milk is allowed to saturate the clothing for hours; imperfect removal of the vernix caseosa at the first washing gives rise to an inflamed condition about the neck, umbilicus, and groins. Keeping the child too warmly clothed and thus increasing the amount of perspiration, which, undergoing putrefaction, cause irritation.

Scrofula, tuberculosis, rickets, gastric and intestinal catarrh, are thought by others to be the principal causes.

The treatment, externally, consists in applications to allay the itching, remove the crusts and prevent any source of irritation.

For the first, carbolic acid in weak solution is usually found the most efficient; the second, by poultices or oily applications; the last, by proper clothing, simple unirritating and non-decomposing ointments. Internally, good plain food, perhaps iron and vegetable tonics. At best the cure is tedious.

Aufrecht: (Magdeburg) **The Clinical Significance of the Glomeruli of the Kidneys in Primary Inflammations of these Organs.** (*Arch. f. Kinderh.* [from *Berl. Klin. Wochen.*, 1886, No. 1], Bd. vii., H. v.)

The author of this paper opposes the view that the albumen which is present in the urine in inflammatory diseases of the kidneys is obtained from the glomeruli for he does not regard as transuded albumen the so-called capsule exudation to which attention was called by Posner, by Ribbert, and by Litten. As the result of his clinical and anatomical investigations he believes that in chronic nephritis albumen appears in the urine, and with it anasarca, ascites and hydrothorax, only when the process has been transferred from the glomeruli to the canaliculi. The more abundant the albumen the more extensive is

this process believed to be until finally the symptoms become the ones which are seen in cases of acute parenchymatous nephritis. In the acute disease, however, the epithelium of the glomeruli of the glomerulus-capsules and of the canaliculi is diseased, in all, from the beginning, the result of which is that, as the process continues the cells of the glomerula-capillaries, of the glomerulus-capsules, and of the interstitial tissue become swollen. The diminution in the quantity of albumen in the urine and the modification of the other evidences of disease which are frequently seen in cases of chronic nephritis indicate, according to the author, the advance of the process from the glomeruli to the epithelium of the canaliculi, that is to a temporary improvement or perhaps, a complete restoration of the epithelium to a normal condition. No improvement is to be expected in those cases in which the process has extended to the interstitial tissue. The author believes that albumen and casts come from different sources, the former coming from the blood, the latter from the epithelium, and this conclusion is largely drawn from the fact that in chronic nephritis the albumen and the dropsical effusion are abundant, while the casts are less numerous and more frequently hyaline than in acute nephritis.

With regard to chronic hemorrhagic nephritis, (considered by Weigert an independent form of the disease), the author holds that it is an inflammation with hemorrhage of a kidney which is already diseased with a glomerulo-nephritis. With reference to the nephritis which occurs in the desquamation period of scarlet fever, which is also a glomerulo-nephritis, it is believed that the disease in the glomeruli begins during the short duration of the scarlatina exanthem, and that during the desquamation period there is a rapid development into those bodies in connection with the occurrence of edema, and bloody urine containing albumen.

The two forms, then, of primary inflammation of the kidney which he would establish are acute parenchymatous nephritis, and chronic glomerulo-nephritis. In the former, after it has continued for a few weeks, no diuretic treatment having been given, the urine becomes clearer, more abundant, and less rich in albumen. If after six months recovery is not complete, or if recurrences obtain every now and then the result may be a complete contracted kidney which appears white to the eye, while the kidney of chronic glomerula nephritis has the reddish color of a normal kidney.

A. F. C.

Andronico: Hemorrhagic Syphilis in New-born Infants.
(*Arch. di Pat. Infan.*, July.)

The subject of hemorrhage in new-born infants who are also suffering with congenital syphilis has recently been thoroughly discussed by Kartmann and Pignot, and in 1883 Behrend described a condition which he called hemorrhagic syphilis of the newly born, which was based upon observed clinical facts. His statements were opposed by Petersen, who considered the hemorrhage in such cases merely a coincidence of comparatively little interest. They were confirmed, however, by Kassowitz, Dreauna, and Emilio Schutz, the last of whom made careful microscopic studies of the vessels of a syphilitic new-born infant who had died from severe hemorrhage. The hemorrhage in cases of this character takes place from the stump of the umbilical cord, and is attributable, principally, to the syphilitic dyscrasia, which may take the most varied forms.

In a case which is reported by the author the mother was infected by her husband in the second month of her second pregnancy. She gave birth to a male child who from the time of his birth cried a great deal, slept little, and from the third day of his life suffered from coryza with very profuse discharge from the nose. On the sixth day his entire skin was of a yellowish color, and there was a slight hemorrhage from the umbilicus which was arrested by the use of a solution of perchloride of iron. The following night the hemorrhage returned and was more abundant than before, at the same time punctate extravasations appeared upon the back and the lower limbs. The umbilical hemorrhage continued at intervals during the next two days notwithstanding the efforts which were made to check it, the child dying on the ninth day from birth with evidences of general prostration. It is now well established as a fact that a mother who is infected with syphilis during her pregnancy, especially during the early months, will bring forth syphilitic offspring, which though it be born at the end of the usual period of pregnancy will yet manifest the usual symptoms of syphilitic dyscrasia. One of these is to be seen in the tendency to hemorrhages on the part of the patient, which takes the form of a vascular ectasis, particularly in the small cutaneous veins. To this is added a diminished power of coagulation of the blood which is also due to syphilitic intoxication. The influence of the syphilitic poison upon the walls of the blood-vessels and upon the structure of the placenta is well known. It may be that

the degenerative action begins in the placenta, and is thence communicated to the vessels of the umbilical cord, and this degeneration will explain the tendency of those vessels to bleed, and the failure of styptics to act as in their function when applied to normal tissues.

A. F. C.

Herz: *Hysterismus in Children*. (*Arch. di Pat. Inf.* [from *Deutsche Med. Ztg.*], July.)

Concerning the diagnosis of this condition the author agrees with Henoch in his statement that in many cases the trouble proceeds from some disorder in the cerebellum or medulla oblongata. With regard to etiological factors, heredity, especially from the mother's side, plays an important part, education has an important bearing, and alimentation is also a most necessary consideration, for anemia or chlorosis frequently accompany the disease. The condition may remain latent for a long time, and then be excited by a local or general affection, especially if it be of a psychical character. Henoch's classification is adopted with reference to the manifestation of the disease, and includes: (1.) cases in which there is a prevalence of psychical symptoms in the form of hystero-epilepsy, catalepsy, etc.; (2.) cases in which convulsive symptoms prevail, as in spasm of the vocal cords, respiratory cramps, singultus laryngeal chorea; (3.) cases with disturbed sensibility in the form of anesthesia, analgesia, or paresthesia; (4.) those in which there is motor disturbance, such as general or special convulsions, contractures, spastic, hysterical dysphagia, etc. In hysterical children there are often anomalies of secretion and excretion, such as hemorrhages, excessive sweating, salivation, polyuria, oliguria or chyluria. What the anatomo-physiological basis of this disease is still remains a mystery, and both its diagnosis and its prognosis often present great difficulties. In cases in which the element of heredity is important as an etiological factor the author believes that the prognosis may be good if no organic alterations have taken place. In the treatment of the disease one should seek to invigorate the entire organism, but especially the nervous system, and quiet the corporeal and psychical hyperesthesia by medical and psychical means. In children in which there is predisposition to this trouble a great deal will depend upon prophylaxis in the way of correct education. As to medicinal agents while there is no one which will answer equally well in all cases, the author has had good results

in some cases with chloral, in others with morphine, with inhalations of chloroform, salts of bromine, tincture of belladonna, quinine, arsenic, and iron. Hydrotherapy is not regarded with especial favor, while psychical treatment often gave good results.

A. F. C.

Gonzales-Alvarez: Nocturnal Cough in Children. (*L'Union Méd. du Can.* [from *Mon. d'hyg. pub.*], July, 1886.)

Sharp paroxysms of cough which sometimes suddenly attack children at night when they are apparently enjoying the most tranquil sleep, are believed to be due to the accumulation of the salivary and mucous secretions of the mouth, originating from a stomatitis or gingivitis, which is associated with dentition. As the patient lies in the horizontal position the accumulated secretion tends to gravitate towards the epiglottis, the arytenoids, and even to the posterior commissure of the larynx. Thus the rich reflex nervous supply of this region is excited, and a cough, either convulsive or non-convulsive is the result. During the day when the child is in the horizontal position the same conditions do not obtain. The same condition as to accumulation of secretions is seen in chronic and moist coryza. McCoy thinks that the paroxysmal cough in question is always the result of nasal catarrh, and is due directly to an irritant action upon certain zones of mucous surface in the nasal fossa, which were described by Hack, MacKenzie, and others. According to McCoy's explanation the vertical position enables the secretion to escape readily by the natural channels, while at night the dorsal decubitus prevents such a course. In cases in which there is disease of the mouth or gums, the author advises the use of frequent doses of a two per cent. solution of chlorate of potash. If coryza is present it is recommended that this solution be injected into the nostrils.

A. F. C.

Frankel and Freudenberg: Secondary Infection in Scarlet Fever. [Abstracted.] (*Rev. Mens. des Mal. de l'Enf.*, July 1886.)

The cases of three children are related who died of scarlet fever when the eruption was passing away, and showed, at the same time, certain acute symptoms in the region of the pharynx. Microscopical examination revealed the presence of large numbers of streptococci in different organs, which presented all the peculiarities of the streptococci of pus described by Rosenbach; there were also revealed chain micrococci such as are found in

puerperal fever. In only one of the cases were other micrococci developed in addition to the variety mentioned. The number of the micro-organisms varied with the intensity of the disease; thus there were only a few in a case of simple follicular angina, while they were abundant in a case in which there were diphtheritic symptoms. It was believed by the authors that these micro-organisms were the agents of the scarlatinal infection. In the cases in question it seemed to be a secondary or combined infection, with its point of departure in the organs of the pharynx. This hypothesis was rendered probable by the presence in large numbers of the micrococci in the lymphatic ganglions in the vicinity of the pharynx. The absence of streptococci in the cutaneous lesions and their identity with the micro-organisms found in certain other affections, shows that they have no relation of absolute causality with scarlet fever, still, they exercise a considerable effect upon the progress of the scarlatinal process, for it is shown in a great number of cases that the evolution of that process is due to secondary infection, determined by different organisms which have developed in the course of the disease. If the streptococcus of puerperal fever and the micrococcus of scarlet fever were identical, parturient women who happened to be in the vicinity of scarlet fever, would be particularly exposed to puerperal diseases. In regard to therapeutics the investigations of these authors teach that in the desire to avoid secondary infection, one must vigorously treat the local changes in the region of the pharynx from the very beginning of the scarlet fever.

A. F. C.

Crooke: Contribution to the Pathological Anatomy of Scarlet Fever. [Abstracted.] (*Rev. Mens. des Mal de l'Enf.*, July.)

This paper embodies the results of microscopical examinations, which were made in the cases of thirty children who died from scarlet fever. Fifteen died during the first week of the disease, the others died between the ninth and the sixty-eighth day. The organs of the neck, the tonsils, palate, and the mucous membrane of the pharynx and larynx showed many micrococci of different kinds. In the severe cases bacilli in chains were found, which resembled the bacillus of malignant edema described by Koch. All those cases in which bacilli were found were fatal at the same period of the disease, and

were characterized by the same clinical symptoms. Six of the patients showed, during life, severe gastric troubles. The mucous membrane of their stomachs was thickened, and its blood-vessels were dilated. The cylindrical epithelium of the glands was transformed into a mass of granular matter, and the muscular fibres were thickened and infiltrated with small round cells and the nuclei of muscular fibres. In most of the cases the liver was the seat of interstitial hepatitis. Important renal changes were found in almost all the cases which took place between the first and the seventh days of the disease. In volume and weight they were normal, and firm in consistence. There was hyperemia in the cortical substance which appeared in the form of stria or *tâches*, while it was more extensively diffused in the medullary layer. The most important modification of this period was the proliferation of the nuclei in the glomeruli. In many of them (glomeruli) the vascular walls were swollen. The capsule of Bowman was thickened and its epithelium showed proliferation. The arteries and arterioles, especially those of the cortical layer, showed proliferation of the nuclei of their endothelium and of their muscular fibre. The hyaline degeneration of the arteries which has been described by Klein, was not discovered. The inter-tubular capillaries were distended by lymphatic cells and proliferated endothelial nuclei. These changes in the kidneys forced upon the author the conclusion that those organs are only exceptionally the seat of interstitial changes during the first week of the disease. In those cases in this series which were fatal between the thirteenth and the sixty-eighth day of the disease the kidneys were invariably enlarged, with lesions notably localized in the cortical substance. Usually the most noticeable fact in these cases was the proliferation of the nuclei in the inter-tubular capillaries. As a conclusion the author has observed that renal changes occur in scarlatina in the following order: (1.) modifications in the glomeruli and in the blood vessels; (2.) intratubular changes; (3.) interstitial changes.

A. F. C.

Cheatham, W.: Earache, or Acute Catarrh of the Middle Ear. (*Atlanta Med. and Surg. Journal*, Oct.)

The diagnosis of earache in children and infants is often difficult. Firm pressure on the tragus or manipulation of the auricle, by causing manifestations of pain, may lead to a correct appreciation of the disease. There is always

an elevation of the temperature. Inspection of the external auditory canal and tympanum may show slight hyperemia or an intense degree of inflammation, obliterating all landmarks. The treatment differs with the degree of inflammation. Leeches may be placed on the tragus or well in on the anterior wall of the exterior auditory canal, first having taken the precaution to plug the canal with cotton (non-absorbent). Narcotics should be used with caution, for if there is fluid in the middle ear, it should be at once evacuated, and as pain is one of the chief symptoms of its presence, it would be prevented from making itself manifest. Hot water from a douche fountain syringe, the small nozzle being introduced into the ear, drawn well up and back, should be used. The force of the water should not give pain, and its temperature, at first warm, should gradually be increased to a degree as hot as can be borne.

Hemorrhagic Syphilis of the New-born. [From an Italian Journal.] (*Med. Record*, Oct. 16.)

Case 1. An infant born of a woman who, in the second month of pregnancy, had a chancre on the vulva, had from the first day of life coryza and marked icterus. Soon after, numerous coffee-colored points appeared on the skin; obstinate hemorrhage took place from the umbilical cord. Death on ninth day.

Case 2. A woman who had acquired syphilis from her husband, some years later gave birth to a child, who developed pemphigus. The bulla soon became filled with blood and petechiæ appeared on the legs. Finally uncontrollable and fatal hemorrhage occurred from the gums of the lower jaw, the umbilical cicatrix, and the intestines.

Bouchut: Symptoms and Treatment of Typhoid Fever in Children. (*L'Union Méd. du Can.* [from *Paris Méd.*], July, 1886.)

The author considers that there is no doubt that typhoid fever is a putrid bacterial disease, with epidemic and contagious characteristics. Feltz and Davaine affirm that they have found in the blood of typhoid subjects its peculiar bacterium.

In children under the age of seven years the diagnosis of this disease is difficult, after that period its symptoms resemble those which are present in the adult. Three forms are considered: (1.) the mucous; (2.) the inflammatory; (3.) the adynamic, and (4.) the ataxic.

In the first the disease begins with fever, loss of appetite, languor, and headache; there is no epistaxis nor delirium, though there may be insomnia. Vomiting may occur at the beginning of the disease, and also diarrhea, or constipation. The belly is never very sensitive nor distended, and never has the lenticular red spots (*tâches*). There may be a cough with sibillant and mucous râles. These are the symptoms which usually appear in patients between two and six years of age. In favorable cases the temperature does not vary more than two degrees between the morning and the evening, and the patient recovers in two to three weeks. In the severe cases it may last a month or more, there may be an abundant and fetid diarrhea with lumbricoid worms in the stools, the patients emaciate and finally die in a marasmic condition.

In the second variety the patients show loss of appetite, weakness, general turgescence of the capillaries of the skin, and an evening temperature which may reach 40.5° C.

The belly is not much distended nor very painful to the touch, by the eighth day when the lenticular spots appear upon its surface. As in the other form (just described) there may be either diarrhea or constipation, or the stools may be natural in character. Headache is usually present, also insomnia, restlessness, dreams, and in some cases delirium and epistaxis. This form of the disease occurs rarely among children between the ages of two and four years, but between the ages of eight and fifteen it prevails. It continues from three weeks to a month and generally ends favorably.

The adynamic form begins with the same symptoms as the other two, but after a few days the symptoms become very portentous, fever, insomnia, and diarrhea, combining to induce a state of great prostration. The entire *ensemble* of symptoms closely resembles that which is seen in the adynamic form of the fever in adults. The eruption is present from the seventh to the fifteenth day, and not alone upon the abdomen but sometimes also upon the chest, neck and extremities. Each successive crop of eruption continues two or three days and then disappears without leaving a trace. In the left hypochondriac region a tumor will always be found which is constituted by the spleen distended by the blood which has accumulated within it. The cough is severe and is caused by hypostatic pulmonary congestion which is followed by pulmonary inflammation. This may be followed by lobular

pneumonia. Over both the base and the apex of the heart a soft, bellows murmur may be heard, which is supposed to be due to a mild negative endocarditis. The fever reaches 40° to 41° C. and is fatal, as a rule, if 42° C. is reached. The pulse varies between 120 and 160, is soft, regular, unequal, and often dicrotic. The disease lasts from a month to six weeks, and is fatal in many of the cases. In the ataxic form the symptoms are quite similar to those which are present in the adynamic form, the difference being in respect to accidents pertaining to the nervous system. There is great restlessness, sharp cries are excited by the slightest contact, by the necessity of drinking, of changing the clothing, etc. There are delirium, tendinous and muscular (fibrillary) contractions and carphology. Hallucinations are present in rare instances, due, as is supposed, to congestion of the meninges or softening of the cortical substance. This form also is very apt to end fatally.

The treatment of typhoid fever in children includes three indications; (1.) to remove from the stomach its retained secretions, (2.) to neutralize and evacuate the putrid and bacterial matter in the intestine; (3.) to moderate the fever and sustain the strength.

A. F. C.

Sevestre: Duration of the Period of Incubation of Measles and its Contagiousness. (*Rev. Mens. des Mal. de l'Enf.*, July.)

The author's conclusions are as follows:

1. The period of incubation of measles is almost of fixed duration, whatever be the conditions in which the disease is developed. It may be considered as eight or nine days. From the time of reception of the contagion to the breaking out of the eruption, the period is usually thirteen or fourteen days.

2. The disease is contagious during the period of invasion, and from the beginning of the prodromal symptoms it is also contagious while the eruption continues, but its active power ceases with the disappearance of the eruption.

3. The contagium of measles is communicated by more or less prolonged contact, which is usually mediate, but at only a short distance from the seat of the disease. Communication of the disease by one who is not suffering from it, or by germs which have escaped from the sick-room to an adjoining one is believed to be of exceptional occurrence.

4. It is very desirable to ascertain by precise observations the exact duration of the period of incubation of other contagious diseases.

A. F. C.

Sigel: Observations Concerning Diphtheria. (*Jahrb. f. Kinderh.* [from *Arch. f. Kinderh.*, vi., 2], Bd. xxiv., H. 3.)

Especial attention is directed in this paper to the treatment of diphtheria with oil of turpentine. It contains an account of 87 cases, of which 20 were fatal. Nineteen of the entire number treated were tracheotomized with a fatal result of 10 of them.

As to the treatment, 16 received chlorate of potash, salicylic acid, and the like, 7 of them died. Twenty-four were treated with sublimate with 6 deaths. Forty-seven received oil of turpentine, with 7 deaths. Thus the percentage mortality under the turpentine treatment was 14.9 and under the other methods 32.5.

The purified oil of turpentine was used, being administered with malaga wine and egg albumen, or with powdered sugar and cognac, in doses of a coffee spoonful once or twice a day. It was usually taken without repugnance by the children, and if vomited the first time there was not often any trouble subsequently. In those cases in which the stomach refuses to retain it, it may be given per rectum.

The dose which was mentioned will usually suffice. In cases of relapse, however, the author thinks it is well to increase the quantity, and in all his cases he saw no bad effects upon the kidneys or other organs, whatever the dosage. Twenty-two of the cases were severe and 25 mild. In the former the turpentine succeeded in 10 cases in reducing the febrile temperature, in the remaining 12 the effect was upon the local morbid process. In the latter the effect upon the latter condition was prompt and decided in all but 3 cases. In 14 of the cases the condition was such that tracheotomy was almost imperative when the use of the turpentine was commenced, and in all of them that operation was rendered unnecessary.

The author does not entirely agree with Unruh in his statement that children with tuberculosis are especially predisposed to diphtheria, but he has observed that children who are anemic from disordered nutrition, scrofulous and rachitic, show a decided tendency or susceptibility to this disease, especially if hypertrophy of the tonsils is associated with the other condition. The opinion is advanced that true diphtheria can occur in the same individual only once. As a means of prophylaxis isolation of the sick in hospitals is advised; and for their treatment is recommended an abundance of suitable food, including wine, fresh air, cleanliness of body and surroundings,

moderately cool baths if fever is present, avoidance of all local treatment, and the use of turpentine.

A. F. C.

Widerhofer: Tuberculosis the Mesenteric Glands, otherwise called Abdominal Scrofula, or Tabes Mesaraica. Tuberculous Ulcerations of the Intestines. (*Rev. Mens. des Mal. de l'Enf.* [from *Allg. Wiener Med. Ztg.*, 1886, 2], May, 1886).

Primitive tuberculosis of the mesenteric glands is very rare. The points which are to be observed in diagnosing it are: the condition of the abdomen, of the digestive function—especially defecation—the progress of fever, the condition of the abdominal lymphatic glands, and the presence of abdominal tumors. The belly in such cases is always swollen, and when the disease has lasted some time the skin which covers it is dry, atrophied and disposed in folds. The most positive diagnostic sign of this disease consists in the presence of small, hard tumors which may be felt under the skin of the abdomen, and in the course of the lymphatic vessels, which are swollen lymphatic glands, in a state of suppuration or caseation. The inguinal glands are also more or less enlarged. Patients with this disease are subject alternately to diarrhea and to constipation; the stools being almost always offensive and with an abundance of fluid fat upon their surface. After a time, several of the contiguous mesenteric glands may unite and form a hard, irregular, nodulated tumor. Tympanites and ascites may also be present and they will tend to make the diagnosis by percussion and palpation difficult. After the accumulated glands have formed a tumor, there may be attacks of limited peritonitis, intestinal strictures, interference with venous circulation, which will be manifested by enlarged abdominal veins, and circumscribed edema of the lower limbs.

Primary tuberculosis of the mesenteric glands is most frequently seen between the seventh and eighth years of life. Its prognosis is fatal; all therapeutic attempts being unavailing to stop the march of the disease. Tuberculous ulcerations of the intestines are observed at about the same period of life as the mesenteric tuberculosis. In very young children they do not have the annular form which is almost always seen with older subjects. The isolated follicles are the first to become affected.

they swell, become reddish in appearance, suppurate, and finally present the appearance of small erosions upon the intestinal wall.

In children from eight to ten years of age, the ulcerative process is propagated along the course of the vessels, and thus we get an erosion of an annular form. The diagnosis of these ulcerations, during life, is very difficult. The stools have nothing characteristic about them. As in the other disease, there is an alternation between diarrhea and constipation, each of which may continue for several days, defecation being accompanied by severe pains. Also after eating there is severe pain of a colicky character. Palpation is accompanied with pain, especially in the region of the umbilicus, being due, not to the ulcerations, but to circumscribed peritonitis. The diagnosis of this condition from chronic intestinal catarrh is well-nigh impossible. The food for patients with this disease should be mostly liquid, and limited largely to milk, eggs, and meat. Opium must be given for the pain; and for the diarrhea, bismuth salicylate of soda, and decoction of campeachy wood.

A. F. C.

Simon: Congenital Infantile Syphilis. (*Rev. Mens. des Mal. de l'Enf.*, June.)

The rapidity of development, and frequently fatal issue of this form of the disease are well known. Therefore no temporizing in the matter of treatment is allowable. Both internal and external treatment should be adopted and persistently followed up. While it is well in adults to defer the use of the mixed (internal) treatment; in infants it should be adopted from the beginning. The symptoms of congenital syphilis may appear at birth or within six months of that event. The most noteworthy of them are coryza, roseola which eventually develop into an ulcerated eruption, mucous patches on the border of the anus, a characteristic swollen appearance of the upper lip, with ulcerations upon the lips and mucous patches upon the mouth, tonsils, and pharynx, eruptions of different kinds arranged in a circular manner upon the skin, loss of appetite and sleep, emaciation, nocturnal fever, etc. When the foregoing symptoms or a sufficient number of them appear, and the diagnosis of syphilis is established, mercurial ointment should be used freely by inunction in the axilla, the groins and the

buttocks. This should be done twice daily, and in addition an approved mercurial solution must be administered by the mouth. (Van Sweiten's solution is recommended as the best) from ten to thirty drops per day being a suitable quantity to be taken, in four equal doses and in milk. Hygienic precautions, in addition, are all important; the air of the bed-chamber must be kept pure and at a temperature of 20° or 22° C. by night and by day. For nutrition the mother's milk is preferable to all others. It will also be a vehicle for the administration of mercurial treatment when the mother herself is undergoing such a course. If the period of lactation with the mother is ended, cow's or goat's milk from a bottle (which must be kept scrupulously clean) must be substituted. The use of a wet-nurse in such cases is deprecated as a crime, for through the mucous patches in the child's mouth she would run the greatest risk of contracting the disease. The external treatment should be continued for a long time; the internal may be gradually suspended as improvement occurs. Should diarrhea supervene, as it frequently does, the medication is not to be stopped, but bismuth and opium may be used to check it; the diarrhea being due not so much to the mercurial treatment as to the disease itself. When all the symptoms have disappeared the mercury may be discontinued but it must be resumed at once should there be any evidence of a return of the disease. As to the use of sublimate baths, they are considered desirable, by the author, only while there is an ulcerated condition of the skin. In such cases ten grammes of the bichloride may be dissolved in a sufficient quantity of water, and the bath continued from five to ten minutes. The mercurial treatment is also advised as an experimental procedure in those cases of congenital syphilis in which the eruption does not appear until the second or third year of life, and then in such a manner as to make the diagnosis uncertain until the effects of the mercury are seen.

A. F. C.

Widerhofer: Bronchial Adenopathy. (*Rev. Mens. des Mal. de l'Enf.* [from *Allg. Wiener Med. Ztg.*, 1886, No. 7.] June, 1886.)

✓ The intra-thoracic glands are intimately connected with the bronchial glands, and may be divided into sev-

eral classes. There are parietal and visceral clusters which are located at the angle of the union of the sternum with the costal cartilages, and the vertebra with the ribs, above and below the clavicle. Another group of them is in the anterior mediastinum upon the trachea and the esophagus, above and below the clavicle. There are also groups in the deeper portions of the mediastinum, upon the bronchi near the bifurcation of the trachea, and upon each bronchial division to its finest ramification. Every affection of the respiratory apparatus and especially of the mucous membrane of the bronchial tubes involves also the corresponding glands. Acute catarrh of the bronchi is usually accompanied by a transient engorgement of the bronchial glands, while if the catarrh becomes chronic the glands become hypertrophied. In the case of pulmonary infiltration, chronic catarrh, and ecstasis of the bronchi, the glands undergo changes which are more profound than hypertrophy. The most grave change of this character is caseation of the glands which is frequently met with in children. Sometimes they suppurate and the pus is ejected through the bronchi. Disease of the bronchial glands is discoverable by means of auscultation, percussion, and palpation. Indications of it are especially noticeable in the region included from the third to the fifth dorsal vertebra, which corresponds to the bifurcation of the bronchi posteriorly, and from the first to the third rib along the sternum. Percussion over these regions reveals great dulness and a decided degree of resistance. By auscultation the bronchial souffle is heard during expiration. Palpation reveals swelling of the sub-clavicular, cervical and sub-maxillary glands. The symptoms which arise from compression of the bronchi with its vessels and nerves will, in some instances, give sufficient data for the formation of a diagnosis, especially if it is the larger ones and the trachea which are involved. Such symptoms are modifications of the voice and respiration and cough. When the caseified glands suppurate and discharge into the tubes, there is intense inspiratory dyspnea and there are violent paroxysms of coughing. Swelling of the mediastinal glands may lead to phenomena which indicated arrest of the circulation, which will consist of dilatation of the superficial veins and pallor of the surface. These phenomena will usually be noticeable only on one of the sides of the thorax.

Should the pulmonary artery be surrounded by a suppurating mass of such glands, a fatal hemorrhage would result. The symptoms which arise from compression of the vagus and the recurrent laryngeal nerves are not infrequently seen. Catarrh of the trachea is indicated by râles which resemble those of the death agony, and they sometimes continue for two or three weeks. The cough may be spasmodic, it may resemble whooping-cough, or there may be a spasm of the larynx which will result in more or fewer violent paroxysms of asthma. In cases in which the bronchial glands are diseased, bronchitis with persistent fever is the result, and this leads not infrequently to a general tuberculosis. In other cases the diseased condition of the glands may be inferred from two or three attacks of pneumonia at the apex, especially of the left lung, and in which resolution does not take place. The prognosis must, therefore, be a guarded one, and if intercurrent diseases affect the patient the result will usually be fatal. Iodine, iron, and cod-liver oil are of especial value in the treatment of this disease.

A. F. C.

3. SURGERY.

Murkoe: Esophagotomy for Foreign Bodies Lodged in the Tube. (*Annals of Surgery*, Sept., 1886.)

Dr. T. M. Murkoe reports the case of a girl, three years of age, who accidentally swallowed an iron jack-stone. The child's mother immediately put her finger into the farces and felt it, but only pushed it further down.

A neighboring physician passed a probang which he thought entered the stomach; he prescribed a powder which produced vomiting the entire night. The next day she seemed sick and prostrated and would not willingly take food on account of the pain in swallowing. She was able to swallow liquids, but solids would only go down a certain distance and then be rejected. There was a little cough, no dyspnea, and no evidence that the child felt any local pain. On the fourth day after the

accident, Dr. Murkoe saw her. She had high fever; she was anesthetized, but nothing could be felt by the finger, nor could any tumefaction be seen or felt externally. A leaden probe was introduced, and at a depth of five inches struck a metallic body. It was seized with forceps but they could not be made to hold. The following day other appliances were tried without success. Esophagotomy was then performed in the usual manner. When the tube was opened, the "jack" was found to have imbedded itself in the opposite wall of the tube, leaving only one limb protruding into the canal; it was necessary to incise the wall before the body of the "jack" could be removed. No attempt was made to close the tube, but the incision through the tissues was brought together by silk sutures except the lower fourth into which a silk tent was inserted for drainage. (This operation was performed long before the days of antiseptic surgery.) The child was ordered to have nothing by the mouth, but enemata of beef tea were to be given every three hours. The child died of starvation on the twelfth day after the operation. The child was not fed by a tube passed into the stomach either by the mouth, for fear of its entering the wound in the esophageal wall made by the "jack." In another case, recently performed upon an adult, the first part of the operation was performed as previously, but the second part differently, viz: a rubber tube was introduced into the stomach through the lower angle of the wound and liquid food placed into the stomach in this way. When this tube was removed a similar one was introduced through the nose into the stomach, so as to prevent any fluid getting into the wound in the esophagus. The tube was inserted through the nose in preference to the mouth, as it would not give rise to so much irritation. The patient was well in little over a month.

The conclusions drawn were: To remove the foreign body as soon as possible by suitable instruments; if unsuccessful, perform esophagotomy, and nourish the patient through a tube inserted into the stomach through the wound, mouth, or nose.

Park, R.: Nephrectomy on a Child Twenty-three Months Old. (*Proceed. Am. Surg. Ass'n*, 1886, in *Annals of Surgery*, Sept. 1886.)

In a child, hitherto apparently healthy, an enlargement appeared on the right side of the abdomen, which

steadily increased in size ; palpation revealed a firm resisting tumor the size of a fetal head at term ; the aspirator withdrew a brownish odorless fluid, examination of which gave negative results. The tumor continuing to increase decidedly in size ; after the lapse of a few weeks, being too large for removal by lumbar rection, an incision was made in the right linea semi-lunaris ; slight adhesions were found ; the peritoneum covering the growth was incised and the tumor shelled out without much difficulty, proving to be as diagnosed, a fibro-cystic tumor of the right kidney, the cystic element predominating, and weighing, immediately after removal, about four pounds. The pedicle was tied and dropped ; rapid recovery ensued.

Jones, E. H. : Congenital Malformation of the External Ear. (*N. Y. Med Record*, Sept. 25.)

Dr. E. H. Jones reports a case, occurring in a new-born healthy male child, of complete obliteration of the meatus and folds of the cartilaginous portion of the right ear ; the tragus was also wanting. The parts were covered by integument of the same character as that of the cheek, except that two small warts were situated near the site of the meatus. The child has remained healthy and has never shown any symptoms arising from the closed meatus.

Nelson: Supernumerary Digits. (*Amer. Jour. Obstet.*, Sept.)

Dr. Nelson exhibited to the Chicago Gynecological Society two supernumerary digits which he had removed from a new-born female child. They had been attached to the proximal phalanx of the little finger ; one about the middle of the phalanx on the outer border ; the other, half way between the middle line and the outer border.

The digits consisted of three phalanges, the two distal ones feeling as if they contained bone, the proximal one consisting of integument and vessels. Upon the distal phalanx of one there was a well-formed nail, upon the other a less perfect one. It is not stated upon which hand the abnormality occurred. This child was the last of six, all the others being free from any abnormality. Any condition like this was unknown in the family, although it is usually hereditary.

Hookes: Ovariectomy for Dermoid Cyst in a Child Thirty Months Old. (*Amer. Jour. Obstet.*, Oct.)

A female child, thirty months old, fairly developed for her age and always having had good health, a year prior to coming to Dr. Hookes was said by her parents to have a slight enlargement of the abdomen, which, during the last six months, had increased in size very rapidly.

When seen by Dr. Hookes, the circumference at the umbilicus was twenty-nine inches, and above that point, up to the ensiform cartilage, it was greater. The distension of the abdomen and upward displacement of the contents of the chest interfered materially with respiration. It was evident that the child could not long survive without removal of the tumor. She had, previously to coming to Dr. Hooks, been tapped twice, allowing the escape of a few ounces of a straw-colored fluid. The tumor was removed, under antiseptic precautions, with some difficulty, on account of numerous adhesions. The pedicle was ligated and dropped, and a drain tube inserted. The patient died the following day; death due to "the extensive adhesions found and the magnitude of the operation in a child of such tender years." The tumor weighed more than nine pounds and was a dermoid containing hair and bony deposits.

Borchem: Swallowing a Two-cent Piece. (*Med. Record*, Oct. 9.)

A child three years of age swallowed a two cent piece, which lodged in the esophagus, and in the efforts made at removal it was thrust into the stomach. The parents were instructed not to give cathartics, but to allow the child its ordinary food. They did not follow this advice but gave castor oil adnauseum but without the desired effect. Three months afterward it passed; the child in the meantime being in perfect health.

Pipino: Nevus of the Ear, due (?) to a Maternal Impression. (*Med. Record*, Oct 16.)

A male child, aged two years, was brought to Dr. Pipino to be treated for "cancer of the ear." At birth a purplish spot was noticed on the helix of the right ear; it did not attain any alarming size until after the first year when it involved the entire helix and became so heavy that it caused the ear to lap over. Removal by electrolysis was

twice attempted, but without producing any diminution in the size of the growth. An attempt was made to dissect off the skin, but it was too greatly involved to succeed. It was finally amputated, the cartilage trimmed, and the integument carefully brought together by suture. When the mother was carrying the child she had occasion to separate a dog from its hold on a sow's ear, which was left lacerated and bleeding; to this circumstance the nevus was attributed.

Caverley: Congenital Malformation of the Ear. (*Med. Record*, Oct. 23.)

A new-born infant presented a condition of the right ear as follows: the auricle was a shriveled mass of integument and cartilage; the helix, lobule, and a prominent antitragus were present; a depression beneath the antitragus seemed to us a canal, but was found to be a pouch one-eighth of an inch deep, which secreted wax. The child shortly showed evidences of right torticollis and became very pussy. Both parents are healthy and have two healthy, well-developed children.

Holmes: Phimosi, Accompanied by Unusual Reflex Symptoms. (*Atlanta Med. and Surg. Jour.*, Oct.)

A mulatto boy five years of age had been suffering for several days with profuse diarrheal discharges and frequent micturition. There was more or less pain in the region of the bladder. He was very much reduced in flesh, his features pinched and his skin dry and harsh. He had a papular eruption from his head to his feet, with a serous discharge not unlike eczema. He had been losing his vision for several weeks and becoming very nervous.

Upon examination of his penis an almost complete phimosis and partially closed meatus was found. Circumcision was performed and all his troubles disappeared.

Bidwell: Enucleation of a Sarcomatous Eyeball, Followed by Abscess of the Brain. (*Kansas City Med. Index*, Oct.)

A boy three and a half years old, whose parents were strong and healthy, was well until a year ago, when at supper he suddenly screamed out, saying that "his eye hurt him." After bathing it he quieted down and went

to sleep. From this time his parents noticed that his right eye seemed to wander and fix itself upon distant objects. The immediate removal of the eye was advised, but was not thought necessary. About a month and a half later he was taken to another city and the eye removed.

He was then brought back and placed under his first attendant. The stump was healing nicely and everything going on well until ten days after his return, when he became delirious and remained so, with one or two exceptions, until his death. He took nourishment greedily. His bowels moved once in two or three days. Three days before death he had several convulsions. Autopsy: The anterior cerebral lobes were converted into an abscess and in the pia mater, particularly on the right side were some nodules the size of split peas, which by microscopic examination proved to be sarcomatous. The diagnosis was, therefore, sarcoma of eyeball with secondary deposits.

Neal: Peculiar Congenital Malformations. (*Med. Record*, Oct. 23.)

A negress was delivered, at term, of a still-born child, which presented the following malformations: its head was hairless; the ears were represented by small grizzly attachments without any exterior meatus; eyes very small; nose flat and without nostrils; the mouth was an opening, without lips, one-half inch in diameter; fingers and toes lacked the ungual and middle phalanges, the skin between the remaining ones being "webbed;" the body of the penis was absent, though the gland was well developed; the testes were absent from the scrotum; the abdomen was incurvated on the right side and protruberant on the left; the gall bladder was external and on the left side.

Franks: Tumor of the Eyeball. (Proceedings of the Randolph County Medical Society.) (*Indiana Med. Jour.*, Aug.)

Dr. Franks showed a girl, eleven years old, who was quite healthy until three years ago, when she began to have a headache, attended sometimes with vomiting. Later the left eyeball began to protrude, finally it was pushed out of the orbit and ruptured. The mass continued to grow and is now the size of an infant's head one

year old. Removal of the growth at any of its stages of development was considered inexpedient. The girl's parents were distantly related. Her father's mother had cancer of the nose, and his sister cancer of the breast. The patient's three brothers have spinal curvature.

Amidon: A Peculiar Epithelial Ulcer due to the Prolonged Use of the Bromides in Large Doses. [Proceed. N. Y. Path. Soc.] (*Med. Record*, Oct. 23.)

Dr. R. W. Amidon presented a girl (age not given) who had been under his treatment for epilepsy for four years during which time she took four or five grammes of bromide of potassium daily, without the development of unpleasant symptoms. She then passed from under his observation and took about six grammes of mixed bromides daily for eighteen months, and when she returned she presented what seemed to be an ulcer on one of her legs with another about to appear on the other. This lesion has only been described in a monograph by A. Voisin. It commences in a large-sized acne spot, which takes on an apparently inflammatory process, with a large base, and afterward breaks down into what seems to be a simple ulceration. About this ulcer, there appears, in a circular form, vesicles, the contents of which become cloudy and purulent and finally are covered with yellowish dark colored crusts. The centre of the affected surface takes on the separative process and becomes healed, while the pathological process extends to the periphery sometimes to the distance of seven centimeters. Microscopic examination shows that the process simply denudes the skin of its cuticle, with hypertrophic changes affecting the papilla, but the true skin is not involved. The disease runs a slow and intractable course, the only measure which seems to do much in the way of arresting it is the thorough use of the actual cautery.

Nivison: Reunion of Severed Digits. (*Boston Med. and Surg. Journal*, Oct. 21.)

A boy, aged seven years, had chopped off with a hatchet portions of the first, second, and third fingers of the right hand. The wounds were diagonal, beginning in the middle phalanx of the index finger, and terminating in the last phalanx near the root of the nail of the third

finger. The patient was reached three or four hours after the accident. At the request of one of the family, instead of trimming off the stumps, the severed digits, which had been sought for and found in the snow, were carefully adjusted to their respective places. They all united except about half of the distal portion of the distal phalanx of the index finger.

Dohrn: Defective Development of the Hymen. (*Arch. f. Kinderh.* [from *Ztsch. f. Geb. u. Gyn.*, xi.; 1], vii, 6.)

The hymen has its origin within the vagina, and is developed in the fifth month of fetal life. In new-born infants it appears as a soft, vascular projection with mucous membrane on its exterior and interior aspects. It is not to be considered as a diaphragm, but merely as a lip-like projection from the vagina. As the child grows the pubic arch expands and in like manner the hymen is expanded transversely, so that when womanhood is reached it forms a ring of tissue which is broader as to its posterior than its anterior segment and has thin borders. This form of hymen is known as *hymen annularis*. The average width of the opening of the hymen is from eight-tenths to one centimeter. In the young woman the passage of the end of the little finger through its opening is usually not painful.

Anatomists have given names to the various forms which the hymen and its opening assume, thus *h. verticillatus*, is that variety which has undulating projections at its border; *h. fimbriatus* has a number of fine papillary growths upon its surface; *h. infundibuliformis* appears to have a pediculated base upon the vaginal wall from which it projects outward like an apron; *h. hypertrophicus* is a rare form in which there are circumscribed hypertrophic portions upon the borders; *h. multiplex* is a rare form in which a supernumerary membrane covers the true hymen; *h. septus bifenestratus* in which one of the vaginal walls is drawn vertically over the opening of the hymen; *h. columnatus* in which the opening is divided midway by a thick fleshy mass of tissue which extends deeply into the vagina; *h. cribriformis* which contains several openings instead of one. The hymen is seldom completely wanting, and the further within the vagina it is developed the more faulty is its location. The consistency of the tissue which composes it may vary from that of cartilage to that of the most

delicate membrane. Atresia of the hymen is not an uncommon occurrence and not infrequently requires the use of the knife for its relief. In sexual intercourse it is only torn at its border, and not throughout its entire extent. Its basal portion is only torn during parturition, and the direction of the rent will depend much upon the form of the membrane. A. F. C.

Jacobi (A.): Polypi of the Rectum and Anal Rhagades. (*Arch. di Pat. Infan.*, July.)

Polypi of the rectum in children are small tumors which vary in size from a pea to a small nut, and may be either single or multiple. They may be either soft or hard, are composed mainly of cells and cellular tissue, are very vascular, and frequently contain a very hard glandular nucleus, made up of glands of Lieberkühn. They may be either pedunculated or sessile with a broad base. They may originate from the region of either sphincter, but are found more frequently near the internal one, and in the middle of the rectum. In some cases they are found near the third sphincter. They were first described by Stoltz in 1831. Eustace Smith states that they are rarely found in children under ten years of age.

Bokai has seen only 25 cases among 66,000 patients. The author has seen not more than three cases in a clinic of 500 hundred patients, and the same number in a general practice extending over thirty years. The most of them were between two and five years of age. Some of them were pale and weakly in appearance, the others strong and robust. The following symptoms may be noted, irregular defecation, constipation in some, diarrhea in others, or the two conditions may alternate, colicky pains, mucous or bloody discharges, tenesmus, and a reddish appearance of the feces. A small quantity of blood may also be passed, either alone or in connection with defecation, and this fact will, of course, be suggestive of hemorrhoids. If it is frequently repeated it may be taken as an evidence of the existence of a rectal polypus. The diagnosis is completed by an examination of the rectum. Polypi have been found in connection with rectal catarrh, and it has been stated that they form an etiological factor in the chronic form of that condition. With this statement the author does not agree. Grave symptoms in the form of decided anemia in consequence of repeated hem-

orrhages may attend this condition, and disturbances of the nervous system may also be present. The treatment consists in the removal of the growth with the galvano-cautery wire, with the wire snare, with twisting forceps or with the fingers. In certain cases in which the pedicle has been long it has been expelled spontaneously. After it has been removed, astringent injections may be used for a time, but they should not be concentrated as to strength.

§ Rhagades or fissures of the anus are considered a not very rare affection among children. When they occur they appear in the form of a reddish or greyish ulcerated patch two or three centimeters in length, often extending as high as the internal sphincter. As in the adult their presence is accompanied with most acute pain. The surrounding skin appears to be perfectly normal. There is also a mild form of fissure not limited to the sphincter ani. It lies contiguous to the sphincter, the skin being eroded and perhaps ulcerated. Such a condition may be due to a mucous patch of congenital or acquired syphilis, to erythema, a local exanthema, to eczema, herpes, or to vulvo-vaginitis. While this condition may be caused by constipation which results from an abnormally long sigmoid flexure, it may also be due to improper diet, to congenital atresia of the rectum, or to congenital contraction of the sphincter with dilatation of the rectum and accumulation of feces. When the rhagade exists the alternate contraction and expansion of the sphincter and the daily contact of the feces render spontaneous cure impossible. The lesion is usually found along the median line of the posterior wall of the sphincter. The intense pain of defecation leads to a resistance to the performance of that act, and with it may come tympanites, gastric and abdominal pain, indigestion, insomnia, and cerebral irritation. Spasm of the neck of the bladder and dysuria are also accompaniments of this condition, with suggestions of the existence of vesical or renal calculi. Or there may be incontinence of urine with evidences of paralysis of the bladder. Such patients are irritable, restless, and unable to sleep well, and a persistent diarrhea may add to their misery. The treatment should consist in the use of injections and mild purgatives, in the use of lead, zinc, or alum, or caustics such as the nitrate of silver or nitric acid. The forcible dilatation of the sphincter is the most satisfactory means of treatment

for the severe cases; though in the mild ones the use of the lunar caustic, or a superficial incision into the ulcer may suffice.

A. F. C.

A CARD FROM DR. H. C. HAVEN.

I beg the privilege of disclaiming responsibility for an article entitled "A Study of Infant Feeding," published under my name in the September number of the ARCHIVES. The MSS. of the article, as published, was taken from dictation merely, for free reading before a Medical Society. The explanations of the tables and their relation to the text were made without notes during the reading of the article. The MSS. was sent to the ARCHIVES with a view to its publication; but through some unfortunate misunderstanding I was not notified of its acceptance, nor fortunate enough to see a proof. Some irrelevant matter appears, which is part of a few paragraphs transferred to another paper on "The Summer Diarrhea of Infants," and which was accidentally not erased from the MSS. sent. It refers to an entirely different set of tables which explains the meaningless reference of infant mortality, as shown by Table A. I ask this opportunity of explanation, because the subject seems to me of such importance that I am unwilling to become a party to its careless treatment.

Note from the Editor.—Galley proofs of Dr. Haven's article referred to above were sent to his city office in his absence in the country, but as it now appears were not forwarded to him. The publishers after waiting an unusually long time for their return, proceeded to put them in form without forwarding them to me for correction. The very interesting article, as corrected by Dr. Haven, will be republished in pamphlet form by Messrs. John E. Potter & Company.

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

NOVEMBER, 1886.

[No. 11.]

Original Communications.

CONTRIBUTION TO OUR KNOWLEDGE OF THE
SUMMER DIARRHEA OF INFANTS.

BY J. LEWIS SMITH, M.D.,

Professor of Diseases of Children in Bellevue Hospital Medical College.

[CONTINUED FROM PAGE 520, SEPTEMBER NUMBER.]

The Dietetic Treatment.—Since one of the chief causes of the summer diarrhea of infants is the use of indigestible and irritating food, it is very important in the treatment of this disease, to be able to give proper directions in reference to the feeding. All are agreed that the aliment which nature provides, that is human milk, is the best possible food for infants, under the age of twelve months. But many mothers, from ill health or other causes, are unable to suckle their infants. Many in the lower classes, anxious and overworked in the care of their families, have not only insufficient milk, but what they furnish is of poor quality, upon which their infants cannot thrive, so that it is necessary to provide other food. With all the disad-

vantages of hand feeding of young infants, it is safer and better than suckling if the mother be tubercular, scrofulous, or syphilitic, or if without any marked ailment, she is feeble and is losing flesh and strength. A very large majority of mothers, who are unable to suckle their infants, are under the necessity of feeding them by hand, for comparatively few have the means to provide wet-nurses. While, therefore, in the treatment of the summer diarrhea we recommend human milk, if it can be obtained of good quality, the instances are common in which it is necessary to recommend some form or kind of artificially-prepared food.

The zeal and activity which have been exhibited of late years in the preparation of infant foods, as substitutes for breast milk, is commendable, and too great honor cannot be bestowed on the memory of the illustrious Baron Liebig, who, without pecuniary reward, and without the expectation of it, devoted so much time to the preparation of a food for infants, and promulgated a formula for it, by which several firms, appropriating the results of his labor, but not retaining his name, have become wealthy. Mellin's, Horlick's, Hawley's, Savory & Moore's, Keaseby & Mattison's, and the Baby Sup foods are prepared essentially according to Liebig's formula. Liebig inaugurated a new era in the feeding of babies by showing the feasibility of the artificial digestion of foods, so as to relieve in great measure, the feeble digestive functions of the infant, of the task of digestion. The example set by him has been successfully followed, so that it cannot be denied that the shops contain some very good foods which are easily assimilated and are nutritious. We may say, too, that each year witnesses improvements in the preparation of foods, so that those now in market are better than those employed ten or five years ago. Still, however useful some of these foods may be, they are too expensive for common use in the families of the poor. The day laborer with his income of seven to nine dollars per week, cannot afford to purchase any of the patented foods for steady use. Even a shopkeeper, apparently carrying on a good business,

recently complained to me that the patented food which his baby of eight months was fed with, cost half a dollar each day, and he felt the necessity of providing other food.

It is the duty of the physician to recommend, if it be possible, a diet suitable for infants with the summer diarrhea, which the poor as well as the rich can employ. The milk of the cow, goat, or ass, bears a closer resemblance, chemically, to human milk than does any other kind of food which can be used for infants. All the infant foods in the shops which have been most successfully employed in the feeding of infants either contain milk as the most important ingredient, or a large proportion of milk requires to be mixed with them in the nursery. Moreover, at the celebrated convention of German physicians held in Salzburg in 1881 to consider the subject of infant feeding; all of them having had such ample experience and having contributed so largely to pediatric literature, that they are widely known as authorities in whatever relates to the care of infants, all agreed that cow's milk is the food which, in the highest degree, promotes the growth and development of infants, and which, therefore, should be recommended in preference to any other kind of food. But the important problem arises, how to prepare cow's milk, so that its indigestible quality, especially the coagulation of its casein in large and firm masses in the stomach, be prevented.

Kumyss in which this coagulation of fibrin is avoided, is not suitable food for infants, although very useful in certain diseases of adults. From its nature and composition we would not regard it as a proper food. At one time its trial was allowed in the New York Foundling Asylum, under the supervision of a gentleman who was largely interested in its sale, and not a single infant, so far as the writer recollects, did well under its use. The laudable endeavor on the part of many anxious parents in New York and other cities to provide a more easily digested milk for their infant, by obtaining it from one cow, is founded upon a wrong understanding of the facts in the case. The casein, as well as other ingredients in milk, fluctuates

between wide limits according to variations in the health, exercise and feeding of the cow, so that the mixed milk of the dairy furnishes a better and more uniform average than is obtained by the constant use of the milk of one cow. There is more certainty that the mixed milk more closely resembles human milk in the proportion of its ingredients, than does the milk of one cow. Besides the milk from one cow is usually for convenience obtained near the city, where the feeding and the health of the animal are not so good as in the rich farming sections at a distance. Moreover, I have proof, that gross deception is sometimes and probably is frequently practiced in this matter of furnishing one cow's milk. Women who sell milk, to unsuspecting families—at a high price—that they say is from one cow, sometimes obtain it from the common stock of milk at the corner groceries.

The milk designed for an infant with the summer diarrhea should obviously be as fresh as possible, and preserved upon ice from the time of milking, for in hot weather it begins to undergo fermentation early. Unfortunately in New York, and probably in most of our large cities, the milk delivered in the morning is the product of two milkings of the previous day, and it is difficult to prevent some fermentative change in midsummer in milk twenty-four hours old, so that its quality is impaired as a food for infants. The milk as soon as it is received should be scalded, which arrests fermentation, and destroys any microbes which are present. Any danger which may exist of the communication of infectious diseases through the milk supply is prevented by the scalding.

Much ignorance exists in families in regard to the degree of dilution of the milk which is required according to the age of the infant. Even physicians occasionally do not give correct advice in reference to the dilution. Water employed for this purpose, whether plain, or in the form of a light gruel, should always be boiled to destroy any micro-organisms or deleterious organic substances, which it may contain. The following is, I believe, nearly

a correct schedule for the amount of dilution required. Infants from birth until the close of the third week require one part of milk and three of water; from the third week to the sixth week one part of milk to two of water; from the sixth week to the third month two parts of milk to three parts of water; at the third month half milk and half water; at four and a half months three parts of milk and two parts of water; at six months three parts of milk and one part of water. After the age of six months one-quarter part of water may still be added. As cow's milk gives an acid reaction, I recommend the addition of two or three teaspoonfuls of lime water to the milk required at each feeding, in order to neutralize the acid or produce a slight alkalinity. A little salt added perhaps promotes digestion.

In the endeavor to prepare milk in such a way that the casein coagulates in the stomach in flakes instead of in large and firm masses, its dilution with a thin gruel of some farinaceous substance as barley gruel in place of water, has been practiced many years with a degree of success. Casein in flakes, in particles or small masses, is more readily acted on by the gastric juice and is more quickly and easily digested than when it coagulates in large and firm masses. An important benefit derived from admixture of milk with the gruel, is believed to be that the latter by its presence acts mechanically in separating the caseous particles. But farinaceous foods are digested with some difficulty by young infants, especially by infants enfeebled by disease. We are told that starch is not digested, or but slightly, by infants under the age of three months, because the salivary glands, which secrete the chief digestive ferment of starch, and the pancreas, whose secretion aids in the starch digestion, are almost rudimentary until after the age of three months. But the fact is now known that the buccal and intestinal secretions aid in the digestion, so that the youngest infant may obtain some nutriment from amylaceous food. Still it is very desirable that an infant sick with the summer diarrhea, and with feeble digestive functions should be

relieved, at least, in a measure, of the burden of digesting starch. If from five to ten pounds of the best wheat flour be packed in a bag of firm texture, so as to form a ball and tied with a strong cord that water may be excluded, and boiled with the water constantly covering it, from four to seven days, a portion of the starch will be converted into dextrine whether or not glucose be produced.¹ It is not necessary that the water should be constantly boiled, provided that it remain hot or warm; the fire may go out at night. The prolonged action of heat produces the change in the starch similar to that effected by the diastase of malt or the pancreatic secretion. The same change may be effected by dry heat, the flour being placed in pans upon the stove or in the oven, but it is very liable to be scorched by an excess of heat, and consequently injured. The flour removed from the bag and deprived of its external covering which is wet resembles a piece of chalk, but it has a yellowish tinge, caused by the dextrine. It should be kept in a dry place and the flour should be grated from it as it is required. I usually allow the mother to grate from the mass after one or two days boiling, enough flour for the infant's food, until the more complete conversion of the starch is effected by the prolonged action of heat. The infant will be better nourished if instead of diluting the milk with plain water a thin gruel prepared by boiling this flour a few minutes in water, be employed with the milk. Two heaped teaspoonfuls of the flour to a pint of water suffices for infants under the age of three months, three teaspoonfuls for infants between the ages of three and six months, and four teaspoonfuls after the age of six months. The proportion of gruel to the milk should be the same as stated above when pure water is used. Recently an intelligent mother, whose infant of three months is doing better with the food than with the proprietary food which she first

¹ Several months ago I tested the boiled flour, with Fehling's test, and the yellow hue produced indicated the presence of glucose; but recently, flour boiled three days gave no such reaction, so I am in doubt whether the change of starch into glucose usually occurs.

used, stated to me that the ball of flour became so crumbly after six days boiling, that it was best pulverized in a mortar, and that she found it best always to sift it to remove the crumbs, if the starch be not completely transformed by the boiling. I am not aware that the portion that remains unchanged does any harm, for starch is not an irritant. The effect of the boiling is apparently to render it much more easily digested.

The following is another mode of affecting a change in starch which involves little expense and is immediate: a gruel is prepared of barley or other flour of the consistence needed, and when it has cooled to a blood heat a small quantity of the diastase of malt is added. It appears that the dry extracts of malt do not contain the diastatic principle sufficiently to serve the purpose of digesting the starch. The liquid extracts, as Reed and Carnrick's, or Trommer's, should be employed, and the quantity of the extract required is so small and involves so little expense, that it can be used by the poorest family. If four teaspoonfuls of barley flour be added to one pint of water, boiled ten minutes with constant stirring, and then cooled to a blood heat, it becomes thick like paste. If now a half or third of a teaspoonful of the malt be added, it becomes immediately thin, so that it easily passes through the tip of the nursing bottle. The starch is changed into a more soluble form, and is more easily digested even if it have not reached the stage of conversion into dextrine and glucose. The gruel thus prepared should be mixed with an equal quantity of milk for an infant of six months. Half as much flour and half as much malt suffice for an infant of three months.

Many infants in New York have been well-nourished with condensed milk and have not suffered with indigestion or diarrheal attacks, unless temporarily, during a considerable part of their infancy. Condensed milk has this advantage over ordinary milk, that it is usually prepared from selected milk, and resists fermentative changes for a much longer period. In the condensation about seventy-five per cent. of the water in milk is evaporated

in vacuo. The laity and even the medical profession need to be instructed in regard to the amount of dilution which condensed milk requires at different ages in infancy. Thus I have repeatedly seen infants suffering from innutrition and intestinal disorders, most frequently constipation, who were fed with condensed milk in the proportion of one teaspoonful of the milk to one teacupful, or to one-half or two-thirds of a nursing-bottle full of water. Directions for the dilution given even by physicians of considerable experience are sometimes so loosely stated and require so much dilution that the infants are not sufficiently nourished, and their parents are ready to abandon the condensed milk for something else. Thus, recently I was asked to see an infant of about four months, fed by the advice of the physician with one teaspoonful of condensed milk to the nursing-bottle half full of water. The dilution I found by measurement to be one teaspoonful to more than thirty of water. The infant was anemic, thin and fretful from inanition, and if in its weak state, it had sickened with any serious malady, as the summer diarrhea, it would probably have perished. Not a few infants thrive on condensed milk of a good brand and properly diluted, during the first months of infancy. If it be diluted with four times its quantity of water, so as to make it of the consistence of ordinary milk, and then prepared as directed above, with a farinaceous admixture, it may be employed and often with good results in the dietetic treatment of the summer diarrhea.

The successful management of the disease which we are considering requires not only the use of the proper kind of food, but its employment in proper quantity, and at proper intervals. Infants nourished with breast milk should be suckled every two hours in the day time after the age of six weeks, and hourly if under this age. But hand-fed infants require a longer time to digest their food, and they should not, as a rule, be fed more frequently than every two and a half hours, if under the age of three months, and every three hours if over this age. We have elsewhere published observations showing the average

quantity of food which infants require at each feeding. The stomach of the infant is very distensible, and some infants like adults require more food than others. According to my observations an infant under the age of six weeks should receive only about one and a half fluid ounces at each feeding. More than two ounces produces undue distension of the stomach. The quantity at three months should be about two and a half ounces, and during the period when the summer diarrhea is most likely to occur, that is between the third and tenth month, the quantity at each feeding should be from three to four or four and a half fluid ounces, provided that the milk have consistence and nutritive properties, equal to that of human milk. A larger quantity is likely to cause some uneasiness and regurgitation, still when the milk contains too large a proportion of water, as in the instance alluded to above, a somewhat larger amount is retained and digested, the water being probably quickly absorbed and passing off in the urine, the quantity of which is considerably augmented. Feeding from the bottle appears to be preferable to spoonfeeding since by suction the food is more intimately mixed with the buccal and salivary secretions. Physicians need not be reminded of the importance of keeping the bottle and tip clean and immersing them in water rendered alkaline by the sodium bicarbonate in the intervals of the feeding.

The medical attendant is often asked if beef tea or some other meat broth may be given to the infant in addition to its other food. Most meat broths are laxative, and if given in any except the smallest quantity, produce a laxative effect. Still some benefit is apparently obtained from giving two or three teaspoonfuls of the freshly-expressed juice of beef two or three times daily, especially to infants over the age of five or six months.

It is not my intention to treat of the medicinal remedies in the part of the subject which we are now considering: namely, the diet; still I may state in this connection, since it relates to the digestion, that I seldom treat an attack of the summer diarrhea in bottle-fed infants, with-

out prescribing a powder of subnitrate of bismuth and pepsin or lactopeptine to be given before each feeding. The following is the prescription which I most frequently employ:

R \bar{y} —Bismuth subnitrat, } āā ʒiij;
 Lactopeptin, }

As much as a ten cent or a five cent nickel piece can hold to be given before each feeding, I have repeatedly observed a cessation of the vomiting and diminution of the diarrhea as soon as the powder was employed. Mixed with a little ice water it is readily taken. Some mothers mix it with the food.

Meigs and Pepper recommend a food for infants prepared from gelatine or Russian isinglass, arrow root, milk and water, and state that after using it for many years, infants have "thriven better upon it than upon anything else we have employed." We cannot doubt the statement of so high an authority, but gelatine contains very little nutriment, and the food which these authors recommend, seems to me not only less nutritious, but not so easily digested, as the food recommended above.

It is not my purpose to discourage the sale of proprietary foods, so far as they have real value. Anything that aids in diminishing the severity of a disease, and in saving life should be commended. Some of the proprietary foods, especially the latest preparations, appear to be useful in certain cases. When so distinguished a physician and experienced an observer as Prof. Henoeh recommends Nestle's food, it is certain that he has seen good results from its use. But the summer diarrhea is most prevalent and fatal in the tenement house sections of the city, in the families of the poor, who cannot afford to purchase such foods without retrenchments, which would be detrimental to the health and comfort of the family. A food, if really useful, should not be condemned even if its proprietor or agent have done gross injustice to physicians, in garbling their writings, and putting together parts of sentences

widely separated by qualifying clauses, so that they appear to recommend what they had no intention of doing. But the dietetic treatment of the summer diarrhea in the manner which I have recommended above, has been in my practice quite as successful as by the use of the proprietary foods, which, we repeat, the laboring class, who suffer most from the malady which we are considering, cannot afford to purchase.

I. GONORRHEAL PERITONITIS. II. HEART-
CLOT. III. ADENOMA.

A College Clinic held at the Chicago Medical College, by

MARCUS P. HATFIELD, M.D.,

Professor of Diseases of Children, etc.

(Stenographically reported by J. Woodruff.)

GENTLEMEN:—It seems in medicine as elsewhere, that it is the unexpected which is always happening, and never has this been better exemplified than in the case of the little girl aged 7 years, whom I presented to you two weeks ago as probably suffering from non-specific vaginitis, at least that was my diagnosis at the time, for there was no enlargement of the inguinal glands, no pain during micturition, fever, nor general systematic disturbance. The parents seem to be respectable people, and I could elicit nothing from the mother of a suspicious character as regards either herself or her husband. As you remember boracic acid sitz-baths and weak injections of chloride of zinc were directed, with the further advice that if the child did not immediately improve the neighborhood physician should be called in. The next day Dr. Fromm was called, and found his patient dressed and walking about the house, complaining only of a profuse discharge from the vagina, which was of yellowish color, rather

thick and with no odor. The parts adjacent to vulva and rectum were excoriated from this discharge, and there was some disposition to remain quiet, but no complaint from pain. No history except that child "had fallen at school and hurt herself" which statement she subsequently denied. Child made no complaint of burning or smarting in passing water. Pulse 100. Temp. 99.

The day following, patient was found in bed a little feverish. Temp. 99. Pulse 100. Urine burns when passed. Diagnosis Gonorrhea, glands in groin size of small marble some on both sides. After leaving patient met the father, who admitted that he had been under treatment for gonorrhea for about a week and that he had slept in the same bed with the mother and child. The same evening the child began to scream upon passing water and the temperature rose to 102°. Pulse 120. Morphine and quinine were freely administered, and linseed poultices applied to the abdomen, which was exceedingly tender. The two days following showed no change in the patient, the pulse and temperature remaining about the same, until the evening of the fifth day, when the pulse reached 150, temperature 104 and respiration 60. At this point the case seemed almost hopeless, nevertheless, under heroic doses of opium aconite and belladonna fomentations and turpentine enemata, the temperature and tenderness gradually diminished; greatly improving after looseness of the bowels, which occurred on the eighth day, and to-day our little patient apparently well, makes a slow but sure recovery,

To me, the case is unique and almost inexplicable, for during many years of dispensary work in the poorer parts of the city where vaginitis in children is not at all infrequent, I have never before seen a case attended with general disturbance of the system or anything approaching peritonitis. Enlarged inguinal glands, urethritis, and even chancroids, are by no means infrequent; but in children, I have never before seen an extension of the inflammation to the peritoneal sac. What, then, is the explanation of this case? The only one that occurred to

me and it is borne out by the facts elicited by the cross-examination of the father—is that upon simple vaginitis in the child we had engrafted, Wednesday and Thursday, a specific poison introduced by the means of the small, glass syringe that the father confesses to have used himself, for his specific trouble, and no amount of ingenuity in cross-questioning himself or the child has been able to elicit anything of a more criminal character.

Unlooked for case No. 2, the results of whose autopsy I herewith offer you for examination, was hardly less puzzling until the post-mortem examination was made. This was a case of sudden death in a child of about nine months of age, who had been feeble and puny since its birth; as was supposed from improper diet, as it had been a bottle-fed baby. Shortly before its death it had been adopted into a well-to-do family, and there its improved bill-of-fare apparently produced a surfeit which had caused a diarrhea lasting for two or three days. An ordinary astringent and paregoric mixture promptly checked this, and the child was apparently doing well, until the physician was suddenly summoned early one morning to see the child, who was rapidly dying. The first thought on arrival was that an overdose of opiate had been given; for the breathing was slow and labored, and attended with marked dyspnea. There was also a sort of croupy rattle in the throat; and after learning that no medicine had been given since the last visit, the next thought was that something had lodged in the trachea. Careful auscultation showed nothing wrong either in the windpipe or the lungs; but still the child kept gasping and panting for breath, and the heart was laboring at its utmost. Without any further apparent cause, the child died of exhaustion, although to the very last the blood appeared fairly well aerated.

The autopsy made the next morning, showed all the internal organs healthy except the heart, whose pericardial sac was filled with fluid, its right side hypertrophied, and the pulmonary artery completely blocked with a fibrinous clot which had gradually formed on the edge of

its orifice. Here, then, was the cause of death. Probably a slight roughening about the opening of the artery had taken place. On this a film of fibrin formed, and by its motion in the blood current it gradually increased, until at last it became large enough to completely occlude the lumen of the vessel and produce death as certainly as if the vessel had been ligated.

Unexpected result No. 3, happened at the Orphan Asylum, in the person of one of its little inmates who had been there since infancy. Nothing is known of the previous family history except that his mother died insane. The boy, generally, was considered a little stupid, but in fairly good health until eighteen months ago he was taken with an eclamptic attack, which lasted, according to my remembrance, a couple of hours, and at that time was supposed to be due to coprostasis. There was no return of the eclampsia for the next six months, nor had the boy any further treatment until at the expiration of that time, when he was again sent to the hospital for enlarged glands of neck, sore throat and general malaise.

It was supposed at that time that he was coming down with one of the eruptive fevers; but as the exanthema failed to materialize, he was kept in the hospital for only a week and then allowed to return to school without any new symptoms; but the glands still remaining persistently enlarged. For the next few weeks following, the glands received local treatment, and the boy took the usual routine medication for strumous adenitis, but without any appreciable effect.

During an absence of some weeks from the city, I lost sight of the boy, and on my return found him again in the hospital, apparently in the last stages of pulmonary phthisis. He was coughing incessantly, raising profusely a purulent secretion, had night-sweats and was without appetite; and yet a careful examination of the lungs failed to show any cavities or consolidation, and, furthermore, there was absolutely no afternoon rise of temperature. On these data a diagnosis of chronic bronchitis

and enlargement of the bronchial glands was hoped for, and attention directed mainly to stuffing the boy with cod-liver oil, milk, and readily digestible foods. To the great surprise of all, and no less of the attending physician, the boy immediately gained in health and weight, and within a month was again up and about, almost without cough, and entirely without expectoration. Notwithstanding, the cervical glands still continued enlarged until the boy had a bull-neck; but which, other than its appearance caused him no annoyance. The appetite, instead of being *nil*, was simply voracious, so much so the nurse had to positively prohibit his gorging himself.

A few weeks ago, after an unusually hearty breakfast, he left the dining-room, started down stairs, became giddy and nauseated, fell in what was supposed to be a faint; as he was picked up he vomited profusely; was taken to bed, passed into convulsions and died in a very few moments. Here, then, is another case of sudden death without assignable cause, for the boy had at no time been in better health than he had for the few weeks preceding his death; nor was there anything about the enlarged glands that would have suggested such an ending. They were not softened, suppurating, nor ulcerating; they were simply hard, fleshy, well-marked adenoma. I regret in this case that a more thorough post-mortem examination was not made, and especially that of the brain was not examined; but from a variety of causes this was impossible; so simply the thoracic cavity was opened. The heart and lungs were found to be healthy with the exception of imperfect expansion in the lower and back parts of the latter, but could not be said to be positively diseased, and certainly in no condition resembling miliary tubercle. The only thing abnormal that could be found in the chest cavity, was the enlarged bronchial glands, one of which packets I present you for examination. It is a large, irregular, nodulated mass, weighing 270 grains, and is one of many that surrounded the bronchial tubes, as may be seen in this drawing:

To me, the explanation of this boy's case, is that we

had to do with a true case of adenoma instead of scrofulous adenitis as we at first supposed. The attack for which he was brought to the hospital, which probably was one of suppressed measles terminating in induration and enlargement of the bronchial glands, instead of ordinary eruption. At all events, from that, or other causes, this attack was followed by an abnormal growth of the cervical glands of the neck and those of the mediastinum. The lymphatic glands of the neck from that time on persistently increased in size, until at last an overloaded stomach or the effort to vomit, displaced one of these enlarged masses, and by its pressure on the vagus,



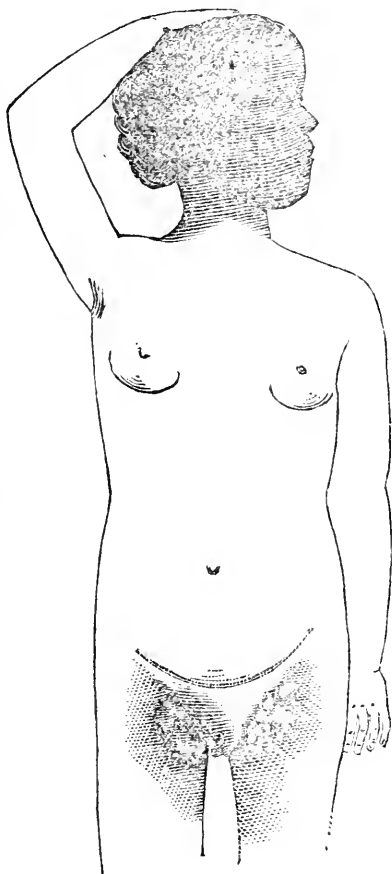
or by its compression upon the return circulation produced death as in a similar case reported by Dr. J. Lewis Smith, at a meeting of the New York Academy of Medicine. I regret exceedingly that a photograph was not taken, as purposed, of the boy before death, but in its stead I offer you one of a case of Hodgkin's disease, formerly a patient of this clinic.

Hodgkin's Disease, or lymphadenoma, according to Goodhart, differs from scrofulous adenitis in the tendency of the latter to cheesy degeneration, and its absence in the former, for the glands in lymphadenoma almost remain hard and do not suppurate. Lymphadenoma as its name implies, is an affection of the lymphatic glands which become enlarged and infiltrated with adenoid material. A deposition of the same kind of substance takes along the line of the lymphatics, even where they are minute in size. These neoplasms increase indirect-

ly with age, and vary in size from a pea to a hen's egg or even larger—there being record of those weighing as much as two to three pounds.

The posterior cervical glands are usually the first affected, though not invariably so. The affection spreads by implication of neighboring glands until those of the neck, axilla and mediastinum, mesentery and groins may all become affected—the disease rarely remaining confined to localized groups of glands. The course of the disease is inevitably fatal from progressive anemia and obstructions to respiration, and so far the only remedies which afforded even temporary relief are arsenic and iron. Having promised so much in general, I need only add that all these facts were exemplified in the case of this little girl, whose photograph I now show you and on whom some forty distinct tumors could be counted when first seen.

The mother first noticed enlargement of the glands in May 1885, the child previous to that time having been apparently healthy. The glands first to enlarge were those of the post cervical triangle on the right side; the submaxillary next. The child, Mary C., aet. 6, lived with parents, in a locality in close proximity to the south branch of the river, low, dirty and poorly drained. Pa-



rents Irish, father day laborer and very intemperate in his habits. Mother apparently healthy, with no history of scrofula, tubercle, or syphilis in the family. Dr. J. W. Nelson, Dispensary Physician—for out patients, reported after his first visit: “Found the child markedly anemic, poorly nourished and with many hard tumors in the course of the lymph channels, implicating *especially* the inguinal, axillary and cervical lymphatic glands and the lymph channels on the right side of the head and face, the submaxillary glands being especially large and hard. The right eye was closed by enlargement of the upper and lower lids, with hypertrophy of superciliary ridges and the line of the temporal artery, 40 *distinctly enlarged* glands could be counted, some harder than others, the latter apparently being the softer, those about the head and face being the densest; the largest, located in the right axilla, was of the size of a hen’s egg and quite soft. Palpation showed no enlargement of the liver and spleen, and percussion gave increased dullness only in medium line of thorax. Heart sounds normal except increased in rapidity.” Dr. Nelson kept a careful record of the case and from his report I give you an outline of its progress and termination and medication.

Sept. 16th. Temp. 103. Pulse 168. Resp. 28. Skin dry and scaly, with sudamina over the body and chest. Bowels moderately loose, urine normal in quality and amount.

R_y—Potass nitratis, 6 grms;
 Spir. aeth. nitrosi. 16 cc;
 Liq. am. acetatis 16 “
 Aquæ q. s. ad. 128 “

MS. 5ss every two hours.

Sept. 17. Child much better. Pulse 140. Temperature not taken but nearly normal by hand. Therefore substitute for above:

R_y—Liq. Potass arsenitis. 16 cc.
 Aquæ q. s. ad. 128 “

MS. 3i twice a day.

Sept. 22nd. Very much better, sitting up without fever. Pulse 126. Some of the glands seem slightly softened and reduced in size, especially those of the axilla and groins.

Sept. 24th. Child again a little more stupid. Temp. 98.8. Pulse 150, running up with the least excitement. Tongue clean; marked decrease of axillary glands. Increase dose of Fowler's solution to three times per diem; also add for general anemia:

R.—Tinc. ferri chloridi 12 cc.

Syr. simplicis q. s. ad. 128 “

MS. 5i ter in die, post cubum.

and ordered the mother to give the child a thorough bath every day and to lay the child after it was bathed, naked to the sunlight for at least an hour daily, and also to rub the enlarged glands briskly every day.

Sept. 26th. Pulse 120. Temp. 98.0. Bowels moved 3 times yesterday. Skin still dry and sudaminous. Glands much reduced in size.

Sept. 28th. Pulse 92. Temp. 98.4. Child bright and appears better in every way. Appetite good, and bowels in excellent condition. Still further reduction in size of glands. Increase dose of Fowler's solution to g. x. and times a day after meals.

Sept. 30th. Pulse 144. Temp. 98. Bowels moved twice this morning, rather loose, glands still decreasing in size.

Oct. 3d. Pulse 150. Temp. 98.5. Bowels moved twice in past twenty-four hours. Appetite good; glands still smaller than when last seen. Fowler's solution begins to show its constitutional effects in puffiness under left eye, right lid being too rigid to show edema. Discontinued Fowler's solution.

Oct. 5th. Pulse 160; temp. 98.8. Rapidity of pulse probably due to fit of crying. Puffiness of eyelids gone.

R_y—Acidi Phosp. dil. 16 cc.

Syr. Hypophosp. com'p. 32 "

" Simplicis q. s ad. 128 "

MS. 5i three times a day before meales.

Oct. 8th. Pulse 133; temp. 98.5. Tongue clean. Glands in *statu quo*. Renewed Fowler's solution in 10 drop doses ter in die.

Oct. 10th. Pulse 144; temp. 97.8 B four times to-day.

Oct. 12th. Pulse 152; temp. 97.8. Stools quite loose, greenish and watery, hence again discontinued arsenic and returned to phosp. acid mixed with cod-liver oil and malt. Good appetite.

Oct. 17th. Pulse 132; temp. 98.5. Stool moderately loose. Renewed arsenic. Glands still slightly decreasing in size.

Oct. 20th. Pulse 135; temp. 98.5. Glands in axilla and groins reduced almost to natural size, except in left groin there is a gland about the size of a chestnut and one of about the same size in the axilla. Patient able to see with right eye, which was formerly closed, and all the glands of the neck are decreased in size, except the submaxillary, which still remains very hard.

Oct. 23d. On examining the child's mouth found three very badly decayed teeth that I thought might be a source of irritation and therefore advised their removal.

Oct. 27th. Mother took child to a dentist and had two teeth in the lower jaw extracted. Child begins again to show edema of the lids which leads to a discontinuance of the Fowler's solution and a substitution of the phosphoric acid mixture.

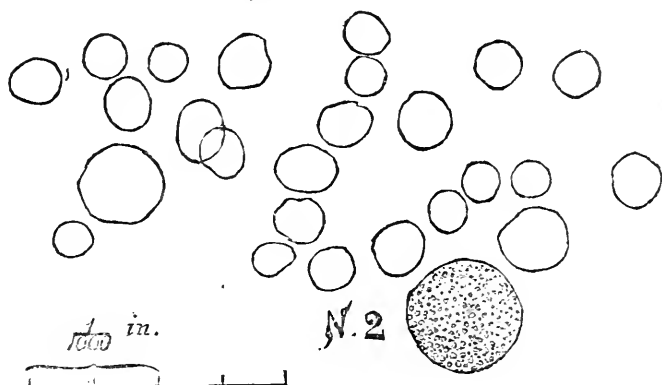
Nov. 1. Glands again rapidly increasing in size, especially in left submaxillary region underneath where the decayed teeth were extracted. Lids of the left eye are becoming thickened. Return to Fowler's solution.

Nov. 5th. Discontinued and phosp. acid given instead.

Nov. 12th. Glands as large as before commencing treatment and left eye now half closed. Glands begin to increase upon trachea and press sternum forwards, either

from hypertrophy of the mediasthal or bronchial glands. Breathing croupy, and more easily with the head thrown back, and from this time on until death it was possible for her to only breathe entirely through the mouth. The glands became enormously swollen, and all the tissues about the face thickened and hardend. Breathing croupy and labored. Tonsils enlarged. Right eye entirely closed and left one nearly so. Skin almost transparent in places and in others scaly. Anemia profound, child wasted in flesh and so hyperasthesic that it cannot bear to be handled. Appetite fair, hearing considerably af-

N. 1



fect. No post-mortem was obtained, but Dr. Curtis examined the blood and presented the following report and drawing to scales of the blood corpuscles:

Number 1, is a drawing of red corpuscles drawn to scale showing their difference in size.

Number 2, is the appearance of the white corpuscle—covered with coarse granules and has a peculiar mushroom appearance. Blood watery and pale, coagulating rapidly. Relative number of red corpuscles diminished and slight increase in the number of the white. Red corpuscles much smaller than usual, many not more than half their normal size, which corpuscles are coarsely granular.

CASE OF CHOREA.

BY W. C. HANSCOME, M.D., MINNEAPOLIS, MINN.

January 1st, 1886. Called to see Emma Harvey, aged thirteen years and six months, who had not been well for about a week.

Upon making an investigation found the patient to be a healthy-looking, well-developed girl, rather tall for her age and general proportions. Had always enjoyed good health, attending school regularly and attending strictly to her duties, never indulging in the sports of the playground, being of a morose, reserved disposition, forming no particular friendly relation with any one, and never expressing any desire to do so. Apt to be cross and crabbed at home with brothers and sisters.

There was no history of any acute disease which had operated as a cause in the production of the present disease.

Patient's appetite was good, slept well, bowels regular, and the only symptoms of which she complained, were of choreac movements of the arm and leg of the left side, which were persistent during the day time. She also complained of pain in the lumbar regions, but not severe. She had not arrived at the stage of puberty, as the mother said, although she had never mentioned the matter to her, or explained to her the changes she would, before long experience. The diagnosis, of course, was easily made.

The cause of the affection was not so apparent; the affections enumerated in the books, as exciting causes, were, from their absence in this case, necessarily ruled out, such as acute rheumatism, intestinal worms, fright, anxiety, intense study, bad hygiene or exhausting disease, enumerated by Hammond. Age and sex he also enumerates as predisposing causes, but give the matter of age such a wide range, from six to fifteen years, that it is un-

certain as to how this acts as a cause. Also as to sex, he states no reasons why sex should predispose to the affection. I entertained some notions of my own, based on experience which will be fully given further on.

Bartholow gives about the same list of causes. Excessive sexual indulgence, and self-abuse, he also classes among the causes.

Flint, speaking of age as a cause, says the disease is more common between the ages of eleven and fifteen years.

DaCosta mentions all the above causes, and many more.

The cause seemed very obscure in this case. And, in the absence of all attributed causes, or at least, they not being so apparent as to admit of discovery, I was inclined to attribute the trouble to the non-established menstrual functions; and my belief was so firm that I assured the parents that a cure would be certain when this function was established.

How well founded my theory, will appear in the following remarks:

The choreac movements were so annoying that I commenced the ordinary treatment by arsenic, giving grs. iv. of Fowler's Solution, three times a day, in a little syrup. All possible annoyance was removed as much as possible, as she was very irritable, and the mother said she was cross and ugly.

The symptoms during the week before commencing treatment, were rapidly getting worse. The treatment as above, was continued one week, and in that short time the symptoms were certainly no worse, if quite as severe.

She began to complain of headache, a common symptom, and to the treatment was added Potass. Bromide, grs. x., every three hours until relieved, and this treatment continued one week. Patient continued to improve a little.

The improvement was not very rapid, yet gradual. The power to control movements of the hand and leg was failing, the foot hanging loosely from the ankle when

raised in walking. Patient could not hold her fork in eating, in fact, did not try to do so, although encouraged to try.

Upon trying to grasp my hand firmly, there was no strength in the member, although she declared she did her best; and I think she did; for I practiced this manner of testing the improvement, and it gradually improved, and as she recovered I found she had a very strong, firm grip.

The loss of nerve force, at least (as I attributed this loss of muscular power to that cause), suggested a change in treatment, and after two weeks' treatment as above, I commenced the following, which was continued ten days:

Tr. Nux. Vom., ʒij.

Elix. Gentian, ʒiij. M. Sig.

A teaspoonful after meals. Improvement was gradual, but sure, patient becoming quite comfortable, yet all the symptoms persisted in a mild form, and although this line of treatment would possibly have resulted in a cure, I determined to commence a line of treatment intended to hasten the evolution of puberty.

The following pill was commenced, and continued three weeks, with marked benefit to the case; for at the end of that time menstruation came on normally without pain or other disturbance and to my great satisfaction:

R_y—Strych. Sulph., gr. $\frac{3}{4}$.

Ferri. Sulph. Exsic., grs. 31.

M. Ft. Pill, No. 60. Sig.—One after meals three times a day, with the following pill at night:

R_y—Pill Aloes et. Myrrhæ., No. xv.

Sig.—One at night.

Under this treatment, as I have said, the case improved rapidly, and menstruation was established; a perfect cure resulted within two weeks therefrom.

Not any of the works that I chanced to consult, during the treatment of this case, mentioned the particular cause that existed in this case; as I firmly believe the absence of menstruation was the cause. This prompted a further search, and I found that J. Milner Fothergill, of London,

says in his *Hand-Book of Treatment*: "Strychnia is most useful where the cord seems lagging behind in the general evolution of puberty—a common condition for the exhibition of chorea."

This was my conclusion, and was the line of procedure I followed. I was much gratified to find the words of Dr. Fothergill, which coincided with my own views in the matter.

All authors agree that age and sex are implicated some way with the cause of chorea. And, as we have seen, Flint puts the age at between eleven and fifteen years.¹ All agree that females are more frequently the victims of the disease. Now, putting these two important facts together, it seems to me the rational interpretation is that, as Fothergill says: "The cord is lagging behind in the evolution of puberty;" and with this truth in view, and its truth being so apparent, will not treatment tending to hasten the evolution of this function, be the rational one in many cases?

This case was very interesting, and instructive as well. Many lines of treatment may be followed with the same end in view, and with possibly even more satisfactory results than in my case. If they did so result, it must be from the rapidity of cure; for my cure was permanent.

I used electricity during one week, but to no apparent benefit. I have made no extensive search to find treatment coinciding with this, having consulted only the works above mentioned.

AN INTERESTING CASE OF EMPYEMA.

BY WILLIAM STANDLING, M.D., ST. LOUIS, MO.

Ida P., eight years of age, German descent, on April 1st while attending school, was taken with a chill followed by fever, which assumed a continued type. It gradually declined until the fourteenth day, when there was a total cessation of fever for about twelve hours, then the temperature raised to 103°. During this whole period there was no complaint of pain; any farther than an occasional cough, there was nothing to be heard either by auscultation or percussion.

However, after fever once more began, the respiration became more hurried, and dullness was apparent over the lower part of right lung.

After making use of diuretics and diaphoretics with an occasional purge, it became evident by the 24th that medication would not remove effusion, and that an operation was the only thing left to be done.

I at once called Dr. Edw. Borck in consultation, he concluded to remove the fluid by aspiration.

Aspiration was at once resorted to, and there was about five pints of odorless pus removed, after which the cavity was washed out with artificial serum. The prospects were very favorable for two or three days, when it was once more apparent that effusion was continuing.

Waiting until May 2nd, Dr. Borck operated by incision over seventh rib, introduced a perforated glass tube about one and three-quarter inches long and drained off the contents, which amounted to about three pints of pus with a fetid odor.

When tube had remained in the cavity fifteen days it was removed, when the effusion gradually subsided and wound healed very kindly. The cavity never refilled. Potass. iodide in five-grain doses was given every three

hours the following two weeks, followed with egg-nogg and milk as required.

The case is well to-day, and the lung has almost regained its strength and position in cavity. While drainage-tube remained in position the cavity was washed out twice daily with the artificial serum alone, and dressed with carbolized absorbent cotton. Temperature never higher than 103°.

SOME STATISTICS ON HERNIA IN INFANTS AND CHILDREN.

BY EDWARD SWASEY, M.D., NEW YORK.

In the extensive literature which one finds in the standard works on surgery, as well as the current literature of to-day, on the subject of hernia, it would at first seem quite impossible to touch upon any feature of the subject that is not already well worked and discussed. Yet I am certain that the statistics and interesting details relating to hernia in infants and young children are very incomplete. The subject is, perhaps, more interesting than important, but the consideration of an accident so very common as is this, will not be wholly unimportant. While an Interne at the Hospital for the Ruptured and Crippled, New York, I made a personal study of 500 cases of hernia in Children, besides collecting cases from the records sufficient to make a total of 1685 subjects, and these were all under twenty-one years of age. No case of the 500, I am positive, appears twice in the record; and of the total, I have exercised precaution that no case appears twice.

Of 1685 children, 1449 were males, 236 were females, ratio, 6 to 1.

Of 500 children, 418 were males, 82 were females, ratio, 5 to 1.

This table includes *inguinal*, *femoral*, and *umbilical* hernias.

If we consider *inguinal* and *femoral* hernia alone, we have the following:

Of 1525 children, 1378 were males, 147 were females, ratio, 9.33 to 1.

Of 461 children, 401 were males, 60 were females, ratio, 6.50 to 1.

The following is taken from Mr. Kingdon's tables, subjects under
twenty-one years of age.

Of 7,465 children, 6,799 were males, 666 were females, ratio, 10.25 to 1.

Mr. Kingdon's tables include only *inguinal* and *femoral* hernias, and they are, beyond all question, the most important statistics we have of hernia. It probably, then, may be stated that for every girl having a rupture in the groin, there are ten boys having a like condition, for these combined figures show 8,177 boys and 813 girls, in the first twenty years of life.

As is well known, *femoral* hernia enters into these calculations but very little, for it is a very rare form of hernia at this time of life. In 500 cases it occurred in but *four* instances; in the 1685 cases it occurred in eighteen.

Of 9,296 children in the London Truss Society's report, in only *six* instances was a femoral hernia seen in a subject less than ten years of age. Malgaigne did not see a case in five years, at the Bureau Central, under twenty years of age. Mr. Kingdon says that femoral hernia is so rare that it is almost unknown before menstruation.

Nevertheless, Sir Astley Cooper saw an example of this in a girl seven years of age. In another case he saw the subject was *eleven* years old, and another still, nineteen years. Samuel Cooper reports a case in a girl of eight years. In sixty-five femoral hernias studied by Mr. Nivet in female subjects, only *one* occurred before the age of fifteen. Mr. Bryant saw two examples at Guy's Hospital. One, a girl aged nine years, in whom the hernia had existed for two years; the other, a girl of twelve years. Both were right femorals. Mr. Kingdon saw one case in a girl

ten years of age. Dr. V. P. Gibney, of this city, tells me of one case he had under treatment in a girl seven years of age. The youngest subject in whom I have seen this variety was a boy twelve years old. It was a right femoral and had existed, so the mother reported, for four years. The second case was a girl, aged thirteen, having a right femoral, which had existed for two years. Another was that of a boy, aged sixteen, who had had a right femoral for four years. The only example of double femoral that I have seen in a young subject, was in a boy, sixteen years old. The mother, an intelligent, observing woman, was positive that these ruptures had existed since her boy was one year old, and that they followed a severe cough at that age. The case was seen by a large number of surgeons of large observation in this city, as a case of unusual interest. These references are sufficient to establish, if it were necessary, the fact that this variety of hernia is both rarely met with in young subjects; and also, that it does occur at a comparatively early age. So far as it goes my observation bears out Berket's statement, that this variety occurs at an earlier age in males than in females. Females, irrespective of age, seem to be quite as subject to inguinal, as to femoral, hernia. Of 321 women, never pregnant, 152 had inguinal, and 169 had femoral, hernia. But pregnancy and child-bearing have a decided influence in changing these proportions, for of 951 mothers 376 had inguinal, and 575 had femoral, hernia. Or, again, of 1,085 women, *not mothers*, 686 had inguinal, and 399 had femoral, hernia; of 1638 *mothers*, 660 had inguinal, and 978 had femoral, hernia. These figures are taken from the London Truss Society's Report, and they show that the variety of hernia of the groin depends more upon the experiences that females pass through, than on the sex itself.

Umbilical hernia is much more frequently seen in female children than in male. Why this is so I cannot understand. In 236 female children it occurred in 89 cases, while of 1,449 boys it occurred in 71 cases, or a ratio of 1 in 2.66 cases in females, and 1 in 20 cases in males. It

is more frequently seen than the right inguinal hernia in female children, as the latter variety occurs in but 73 cases.

Of the 500 children which I personally examined, 82 were girls, and 22 of these having umbilical hernia more than 1 in 4 cases, and 418 were boys, in whom there were 17 examples of this rupture—1 in 24.50 cases. And yet Teale says: "Both sexes in infancy are equally predisposed to umbilical hernia, and it is in respect to the inguinal hernia alone that striking difference in proportion between the sexes is perceived. * * * It is further shown that umbilical hernia of infancy and early childhood predominates in very marked degree in the male sex." His statistics were compiled by Megaigne at the Bureau Central. I find no writer who states anything material different from Teale, in 1846, and the London Truss Society gives no information on this form of rupture. It is a variety rarely developed in children after the age of two years. In 1,685 children it occurred in 160 cases, and in 500 children, 39 times, a ratio in the former case of 1 to 10.50, and the latter, 1 to 13.

Inguinal hernia, is, of course, the variety of rupture most frequently seen of any in children. It is not stated, that I am aware of, in what proportion the two sides are the seat of hernia; nor, in fact, the proportion that the sexes are affected.

Of 1,507 inguinals, 983 on right side, 335 left, 189 double.

Of 457 inguinals, 285 on right side, 90 left, 82 double.

The following table shows in 407 inguinals, the age at which the hernia was first seen by the parents:

First 6 months	Males	$\left\{ \begin{array}{l} \text{R. 93} \\ \text{L. 23} \\ \text{D. 35} \end{array} \right\}$	total 151	Second 6 mos.	Males	$\left\{ \begin{array}{l} \text{R. 5} \\ \text{L. 3} \\ \text{D. 2} \end{array} \right\}$	total 10
	Females	$\left\{ \begin{array}{l} \text{R. 9} \\ \text{L. 25} \\ \text{D. 2} \end{array} \right\}$			Females	$\left\{ \begin{array}{l} \text{R. 0} \\ \text{L. 0} \\ \text{D. 0} \end{array} \right\}$	
1 year to 5 inclusive	Males	$\left\{ \begin{array}{l} \text{R. 95} \\ \text{L. 24} \\ \text{D. 21} \end{array} \right\}$	total 140	6 years to 10 inclu.	Males	$\left\{ \begin{array}{l} \text{R. 16} \\ \text{L. 11} \\ \text{D. 1} \end{array} \right\}$	total 28
	Females	$\left\{ \begin{array}{l} \text{R. 10} \\ \text{L. 4} \\ \text{D. 1} \end{array} \right\}$			Females	$\left\{ \begin{array}{l} \text{R. 10} \\ \text{L. 4} \\ \text{D. 2} \end{array} \right\}$	
		total 15				total 16	

11 yrs. to 15 inclu.	{	Males	{	R. 12	}	total	16	16 yrs. to 20 inclu.	{	Males	{	R. 6	}	total	12
			{	L. 4							{	L. 6			
		Females	{	D. 0	}	total	0			Females	{	D. 0	}	total	3
			{	R. 0							{	R. 2			
			{	L. 0					{	L. 0					
			{	D. 0					{	D. 1					

It will be seen by this table that inguinal hernia is of as frequent occurrence in the first six months of life as from this time to the age of six years. Only ten cases occurred in the second six months, and these were all males. It will be of interest, also, to notice how the period of the first six months of life is almost a duplicate in every way of the period, from one year to five, inclusive, the chief difference being in the double variety. It is the period at which 9.50 males have inguinal hernia to one female. The age at which the proportion of females most nearly equal males, is from six years to ten inclusive, when it is more than one-half. Of the total, 457; on the *right* side there were 285 — males 250, females, thirty-five; on the *left* side ninety, males seventy-six, females fourteen; *double*, eighty-two, males seventy-two, females ten. On the *right* side, the males outnumbered the females seven to one; on *left*, 5.50 to one; *double*, seven to one. Of the total, 983 on the *right* side, 910 were males and seventy-three females; of the 335 of the *left* side, 290 were males and forty-five females; of the 189 *double* inguinals, 177 were males, and twelve females. This shows that the males outnumber the females on the *right* side very nearly fourteen to one; on the *left*, 7.50 to one, and the *double*, fifteen to one. The first figures I know are accurate, and proportions correct. The latter undoubtedly show many re-entries on the records, and for this reason are not fully reliable; but I give these for what they show. The patulous condition of the inguinal canals, will, in a great measure, account for the frequency of hernia in males. This state of the canals may be seen from the following study: In 121 post-mortem examinations on infants, by various observers, the canals on *both* sides were open at birth in fifty-seven cases, nearly one-half; in twenty-one cases the *right* side alone was

open, and in twelve cases the *left* alone. The *right* side in one-fourth of Cowper's cases was open. In one-fourth of Seiler's, in one-sixth of Schareger's. In a fraction more than one-half of Cowper's cases, *both sides* were open. The *left* side was open at birth in one-fifth of Seiler's cases; one-fourth of Cowper's. But the proportions of *right* inguinal hernia over *left*, far out-numbers the difference, seen by the above statements, to exist in the patulous condition of the right and left inguinal canals. Why are there 227 cases of *right* inguinal in males, and only seventy-one left inguinal; a difference of 3.25 to one? And why are there thirty-one right inguinals in females and only thirteen left inguinals, a difference of 250 to one? Or, to refer to a larger number of cases, the total of 1507 inguinals. Why were there 983 on the right side and only 335 on the left, a difference of 2.75 to one? And of females, why was this proportion as seventy-three rights to forty-five lefts? It is probably due to the proportionally large size of the liver at this age, as this proportion between the size of the body and the liver is as follows at different ages: New-born 1:24.1, eight days, 1:26.1; five weeks, 1:21.6; fifteen months, 1:33.2; five years, 1:18.3; eleven years, 1:25.5; forty years, 1:40. Excluding the first six months, the age, when right inguinals are most commonly seen, corresponds to the age of proportionally large liver, viz.: one to five years. The position of the small intestines would favor left hernia rather than right, as the statement of Prof. Wood is that: "The direction of the mesentery is towards the left side of the abdominal cavity, and the small intestines lie chiefly in the left lumbar and iliac, and hypogastric regions. On the left side, also, the mesentery is considerably lower than on the right, though its point of attachment is higher." Other conditions have been looked upon by some as causative relations of hernia. Among these is *heredity*, and I have made some inquiries on this point from the many parents represented by nearly five hundred children. Some were foundlings and no information of this nature could be obtained.

On this subject, Mr. Birkebb says: "A disposition to hernia may be inherited, that is, children of ruptured parents are frequently affected in like manner. Both sexes show an equal tendency to be thus influenced. The proportion by calculation seems to be about thirty per cent. This hereditary predisposition, paternal, maternal, or on both sides, is manifested in a most marked degree with infants under one year, the cases being about twelve per cent. of the whole number in the first twelve months of life." Malgaigne asserted that nearly one-third of the parents who came under his observation, suffering from hernia, had other members of the family ruptured. Kingdon says: "The London Truss Society's report shows slightly more than one-third."

For some reason, my observations do not go to confirm these statements. Of very nearly five-hundred cases, there were only seventy-one who had a relative ruptured. Of 152 boys and nineteen girls, twenty boys had a father ruptured, ten a grandfather, ten a brother. Of the girls, seven had a father ruptured, three a grandfather, and only two a mother. Of the fifty-two boys, thirteen were ruptured in the first month, ten in the first year, eighteen from the first to the fourth year, and the remaining eleven at different ages to twenty-one years. Of the nineteen girls, only three were ruptured in the first three months of life, the remaining sixteen were scattered along from this time to the age of twenty-one years. Again, of sixty-eight parents with hernia, mostly fathers, and representing 290 children, there was not one who had a child with hernia. Of fourteen adults, not parents, there was none who had a relative ruptured. In eleven other cases, there were some relatives of the immediate family having a hernia. Instances like the following, seen by the writer, would, as Sir Astley Cooper says: "Appear to depend on hereditary conformation of the parts of the groin." A lady with double femoral hernia, had two sisters with double hernia, and the mother had rupture on the left side. Three brothers, twins, aged five years, and a brother aged seven, all having inguinal hernia on the right side.

The condition of *phimosis* has been regarded by some, as quite productive of hernia, from the straining and crying, at times of urination. I doubt not that a condition of this normal development in children does some times produce rupture in the way mentioned, but I doubt if it is an important factor. In the great majority of the 418 males, *phimosis* in some degree existed, and in fifty-two this was the condition to a marked degree. In eighteen of these fifty-two cases, hernia was first seen in the first year, seventeen from the first to the fourth year of age, and seventeen at various ages to twenty-one years. But seventeen of the fifty-two, first appeared at a time when whooping cough was also present; some after severe and protracted coughing or crying; some were associated with an undescended testicle. At the same time, I have seen thirty-nine Hebrew children, who had been circumcised at the eighth day, and in only one was the tumor seen at birth. In ten, it was seen in the first six months; in fourteen, from this time to three years of age. Kingdon asserts, "that Jews, as a race, seem to be very prone to this malady," and I have no reason to doubt it; for some of the largest and most unmanageable ruptures I have ever seen, have been in children of this nationality.

An *undescended testicle* is not infrequently associated with a hernia. In the twenty-six cases which I have seen, in which this existed in some degree, the subjects were from fifteen months to fourteen years of age. In one case, the *left* testicle was still in the abdomen, in three it was lodged in the canal, and these three cases had a hernia on the right side. In three subjects, in whom the *right* testicle was lodged in the canal, there was also a hernia; but in one of these there was a left hernia only. In five cases, in which *both* testicles were in the canals, there was a right hernia in two cases, and in one a left; in two none. In fourteen cases the testicles were just below the external ring, and in eight of these subjects there was a right, in three a left, and in three a double, rupture.

In 103 dissections by Wrisberg, in children at birth,

the testicles were in normal position in seventy-three; in twelve, neither gland had descended. In seventy dissections by Cowper, the testicles had descended in sixty-three.

In addition to these observations which I have made, relating solely to statistics of hernia in infants and children, I will add one word concerning the mechanical treatment of hernia. From what I have seen of the different forms of appliances used for this purpose, I am convinced that the truss with a steel spring passing around the pelvis on the opposite side from the hernia, in single rupture, and in case of double ruptures, one opening in the back and joined in front, is the truss that will in the largest number of cases, best meet the indications of mechanical treatment.

THE PROPHYLAXIS OF SMALL-POX.¹

BY S. H. STOUT, A. M., M.D., LL.D., CISCO, TEXAS.

The contagium of small-pox, conveyable through the medium of the atmosphere, is easily diluted and rendered innocuous by free ventilation and the brisk circulation of that medium. Few unprotected persons ever contract the disease, rapidly passing within a few feet of a case of small-pox, unless they do so "indoors."

Physicians have never been known to convey the contagion in their clothing, if previous to coming in contact with susceptible persons, they had ventilated their clothing in a moderate breeze, for from a quarter to a half an hour. The visits of physicians in general practice to the apartments or wards of their small-pox patients ought to be brief, to reduce to the minimum the liability of their becoming transporters of the contagium from house to house.

¹ Read before the Texas State Medical Association, April, 1886.

Small-pox is more successfully treated in the open air, than in illy ventilated apartments. Not only is full and free ventilation better for the patients, but it is preventive of the accumulative virulence, which the small-pox virus seems to acquire by being "bottled up" in closed apartments. Even drafts of cold air seem not to render cases of small-pox less manageable, if exposed thereto prior to the suppurative stage. The statistics of the Confederate hospital department which I directed, exhibit a smaller percentum of mortality of small-pox cases in military than in civil practice.

Thorough ventilation diminishes, the proportionate number of cases of the confluent type of the disease, and thus, too, the volume of the volatile contagium emanating from the patient, is greatly diminished.

Isolation of the patient is a necessary and important prophylactic expedient.

The lymph of the small-pox vesicle, and the pus and dried scabs, which are its progressive modifications, preserve their vitality and effectiveness for the purpose of inoculation and the giving out of volatile contagium, under the same circumstances and conditions, which are necessary to the preservation of the vitality of other vegetable and animal cells. Hence, the dried lymph, or the scab of a small-pox vesicle, best preserves its vitality in presence of a temperature below forty degrees Fahr., and when oxygen is excluded. The putrefactive process destroys the vitality and consequent contagious character of the solid small-pox virus as effectually as it does that of cow-pox. A high temperature and moisture in the presence of atmospheric air favor this process.

In cold weather, the virus of small-pox is longer potent than in warm weather. Its fomites and dried pus and lymph, often convey the contagium thousands of miles in the packages of commerce, and in the chests and trunks of immigrants and other travelers.

A case of small-pox occurred in Nashville, Tennessee, many years ago, prior to the days of railroads, which originated from some wood-shavings, which had been used

in packing merchandise in Philadelphia, Pennsylvania, more than two months previous to the infection of the merchant's clerk who opened the package in the first named city. The wood-shavings had been procured from a carpenter's shop, for the purpose of packing hardware, where it was authentically ascertained a case of small-pox had lain for several days. The time was winter. The package traveled over the Alleghany mountains, on the old National road, to Wheeling, thence by steamer to Nashville—all the conditions necessary to the preservation of the vitality of the contagium, viz: a low temperature, and the exclusion of the atmosphere, and moisture.

In January, 1865, my old cook, who had been enjoying her recently acquired freedom by catching the small-pox in Nashville, voluntarily sought her old home, eighty miles south of that place, and brought with her her chest of clothes, which had not been carefully cleansed and disinfected. From the fomites contained in that chest, six weeks after her return home, the small-pox was propagated. Four negroes (two of whom died) and two children of the family of an ignorant white tenant, were the subjects of disease. None who had been protected by previous vaccination were affected. My wife and four children were day after day exposed. The kitchen in which the old negro cook lived, and where the negro sufferers were infected, was only about twenty-five feet from the dwelling-house. The family of the white tenant resided in my office, about one hundred and twenty-five feet from the residence. The parents had previously been vaccinated, and escaped the small-pox. As soon as the disease was diagnosed, in the case of a negro child lying sick in the kitchen, the two children of the white tenant were vaccinated. In one case the vaccination was not effective. In the other it was. In the latter, developed a mild case of varioloid. Both of these children had daily frequented the kitchen. No case occurred among the members of my own family. They had all been effectively vaccinated early in life.

Learning of the existence of small-pox on the place, the

Federal commander of the post at Pulaski, seven miles north of my residence, sent a medical officer thither to inspect and adopt whatever measures he deemed necessary to "stamp out" the disease. Grossly ignorant of the scientific principles that should have guided him in the choice of methods to secure disinfection of the premises, or, regardless of consequences involving the private property of an opposing belligerent, he burned my kitchen to the ground, which had cost me more than five hundred dollars, and was of such substantial material as would have insured its standing for three generations, unless destroyed by vandalism or an act of Providence.

Upon my return, early in May, of the same year, I set about disinfecting the other three houses in which there had recently lain cases of small-pox (one of them fatal of the confluent variety). I did the work thoroughly and effectually, as follows: Large fires were kindled on the hearths and kept burning two days with the doors and windows shut, after the floors and walls of the houses were thoroughly drenched and moistened with water, the fluid being thrown into every crack and crevice. The high temperature and moisture assured complete and rapid putrefaction of every particle of contagious matter that may have remained in the houses. After a sufficient time had elapsed to give reasonable ground for belief that the putrefaction was complete, the floors were scoured, the walls white-washed, and the buildings ventilated. After a few days they were again occupied.

I have recorded here the above domestic experience to impress upon others the details of a method which, in my opinion, can reasonably be relied on to insure the thorough disinfection of houses that have been occupied by patients afflicted with small-pox. In well-built houses in the construction of which the joiner has done his work well, the quantity of water used need not be as great as was used in the above-mentioned instances.

The isolation of cases of small-pox or varioloid during the whole course of the disease, should be complete, and of unprotected persons, who have been in contact with

them, for a period of at least seventeen days, is an obvious and proper precaution against the risk of the multiplication of sufferers. All exposed persons, who have not previously been successfully vaccinated, should be required by law to at once submit to the operation. Those who give unmistakable evidence of having been successfully vaccinated, need not, in all cases, be required to submit to it; for there are considerations pertinent to the state of health of the subject that may justify us not to insist upon his revaccination. Indeed, revaccination should never be heedlessly practiced. I am satisfied that I have seen much unnecessary suffering inflicted by revaccination. The vaccine virus, if carefully selected, and for the first time inoculated upon a healthy subject, has never, in my experience, produced other than a typical case of mild vaccinia. On the contrary, I have seen many healthy subjects of revaccination seriously afflicted by constitutional symptoms and local lesions, resembling those produced by septic poisoning, as in the case of dissecting wounds. These facts can be rationally explained. If the inoculation of vaccine virus is followed by the development of a typical case of vaccinia, no harm is done the patient. But if the virus is inoculated upon a person who, owing to a previous vaccination, cannot take on true vaccinia, the vaccine virus, after lying for a considerable time in contact with the capillaries, may go through the putrefactive process and be absorbed in a septic condition.

Prior to the late war of the States, I had never met with a case of so-called "spurious vaccination," which often inflicts serious constitutional and local injury upon the organism of many of the subjects of it. The first cases occurring in the Confederate army were claimed to have originated from the use of virus imported from the north; and many were so uncharitable as to attribute its importation to the malignity of the enemy. It became my duty, as medical director of the hospitals, of the Confederate Army and Department of Tennessee, to investigate the subject of "spurious vaccination," and, if possible, to devise preventive measures. I found the so-called "spu-

rious vaccination" manifested in a variety of types and degrees of malignancy. There were no cases of subjects, healthy at the time of their first vaccination, by medical officers who were careful in the selection of the virus used. A large majority of the cases were those of soldiers who had been unnecessarily revaccinated, and that, too, by their unprofessional friends or fellow soldiers. Nearly all of those who claimed to have been inoculated with syphilitic virus, and had syphilitic symptoms and lesions unmistakably manifest, were proven to have previously been victims of *lues venerea* contracted "in the natural way." Some cases had been revaccinated just after recovering from measles or protracted attacks of other diseases, or were scorbutic. Of these, many suffered from gangrene or erysipelas. There were a few cases of erysipelas and gangrene in patients who were vaccinated while occupying wards in which erysipelas and gangrene soon afterward prevailed. Many cases were plainly cases of septicemia, proven to have originated in the silly practice of soldiers and other laymen ignorantly inoculating with putrid pus, presuming it to be vaccine virus.

Injudicious revaccinations were often performed in the hospital, in obedience to orders issued by the commanding officers, upon the occasion of every small-pox scare, requiring every soldier in hospital to be revaccinated before returning him to duty.

The foregoing facts being observed, I recommended that no virus should be used in the field service or in the hospitals, save that which was collected under my direction. Soldiers were forbidden to vaccinate each other; and medical officers were required to carefully consider the state of health of every soldier presented for revaccination, and abstain from performing the operation on unfit subjects, except in rare cases of exposure to small-pox contagion. At every hospital post in the department, a surgeon was detailed to scour the country for many miles around his station, in search of healthy children, and vaccinate them, collect the crusts at maturity and send them to me for distribution. A supply of these crusts

was secured and maintained until the end of the war. Spurious vaccination soon became, in that army, "a thing of the past," no new cases occurring, within my knowledge, in the last twenty months of the war.

My experience in private and public practice has led me to the following conclusions on the subject of vaccination as a prophylactic of small-pox.

Carefully selected humanized vaccine virus, inoculated by an intelligent and judicious physician, upon properly-selected subjects, never produces serious injury to the patients; that a mild type of vaccinia results therefrom, as effectively protective against small-pox as is the inoculation of small-pox itself, or a previous attack of the disease, taken in the "natural way." I have met with no case of death, and never had one officially reported to me, from small-pox or varioloid, of a patient who had previously been successfully vaccinated. But an Irishman, badly marked with small-pox, who voluntarily sought service as a nurse, in Atlanta, Ga., in the small-pox hospital there, took confluent small-pox and died. This case was officially reported to me by one of the ablest medical officers in the service.

The experience above stated is given for what it is worth. Doubtless the experience of others differs from it. By itself, it does not justify the deduction of inferences convincing of a general principal or law.

Of the thousands of subjects I have personally vaccinated, none ever exhibited symptoms or lesions of abnormal or mild vaccinia except those in which I was compelled to use virus procured from a bovine source.

So unpleasant has been my experience with the bovine virus, that I have resolved never again, on my own responsibility, to use it, as vended by the vaccine farmers. During the late small-pox scare in Cisco, growing out of the existence of small-pox in Fort Worth, to gratify my clients, I used the unhumanized virus, purchased in Dallas and Fort Worth. In no instance did the disease produced by its inoculation produce the mild features of a typical case of Jennerian vaccinia. In every case there was some

departure from the normal course of the disease, and, in a large majority the vesical was unusually large. In many cases, it was not umbilicated, and the surrounding inflammation of the skin and cellular tissue was alarmingly severe, disabling the patient two or more weeks. In some cases, there was sloughing of the dermis and the cellular tissue beneath it, causing me much anxiety and trouble to stop it. All were healthy subjects.

One of the cases inoculated with the original bovine virus proved of a moderately mild type. I used the lymph of this case to inoculate a number of other cases. All of these developed a mild type of vaccinia, thus proving the superior safety of the humanized virus over that obtained directly from the kine.

The abnormalities observed in those cases inoculated with the virus as obtained from the vaccine farms, were, no doubt, due to the intermingling with the genuine vaccine lymph, of putrid pus, serum or blood (or several or all of the fluids), in collecting the virus. I had never before used the bovine virus, and never before had any trouble or anxiety about cases I had myself vaccinated. It had always been my habit, when practicing in more densely populated localities, to keep on hand a supply of good humanized virus, in the form of carefully selected crust or lymph, excluded from air (the lymph preserved in tubes, hermetically sealed, and the crust in beeswax) by vaccinating the children of my patrons, during seasons of quietude, and at such intervals of time between operations as to secure a continued supply. Thus I was always prepared for emergencies.

Until the speculators on human suffering and human necessities essayed through the secular press, to educate the laity into prejudice against humanized vaccine virus, and in favor of the exclusive use of that of bovine culture, honorable general practitioners felt themselves responsible for the preservation of the supply of pure Jennerian virus, as well as the careful selection of that virus, and of the cases they inoculated with it. It was then the

tom of reputable members of the profession to aid

each other in perpetuating a supply of good vaccine virus by free interchanges. The popular preference for bovine virus has caused medical men to become neglectful of their duty to propagate and preserve a supply of reliable humanized virus. Indeed, it is doubtful whether (were they to attempt it) they could now do so successfully, in defiance of the industrious flaunting in the faces of the laity of the circulars of the joint stock corporations, chartered by law and backed by capital, and the certificates of medical men, who seem not to be aware of the gravity of the responsibility of granting them. Thus the great discovery of Jenner, who made it a free gift to humanity, and bequeathed it to the medical profession, to preserve it, and use it with judgment and skill, has been greedily seized upon by monopolists, and become an article of traffic, in the hands of unskilled propagaters and ignorant harvesters of the product of vaccine farms. But have we, as medical men, the moral right to yield to speculative stock companies the duty of choosing the vaccine virus we use? If so, we may, with equal propriety, hire distant, and (so far as we know) unskilled diagnosticians, to sit in judgment upon any or every case we are called upon to treat, or wholly to resign our practice to the patent medicine vendors, who, in publishing and circulating almanacs and circulars and pamphlets, in their unhallowed greed for filthy lucre, spend thousands of dollars a year to educate their dupes into the belief that they are better qualified to diagnosticate their own diseased condition, than are educated, skilled and experienced physicians.

It is the duty of family physicians to resent and resist the charlatanry of the vendors of bovine virus, who are seeking to create a monopoly in the traffic of an article which ought never to have been permitted to become an article of traffic.

It is not true, as the traffickers in the bovine virus assert, that the original Jennerian virus has lost its protective power, or that the use of humanized virus is necessarily more hazardous to the subject than the bovine

Nor is it true that there is more risk of collecting adulterated vaccine lymph from human than from bovine subjects of inoculation. Is it more probable that the burly, and, perhaps, stolid laborers employed on the vaccine farms, will exhibit more skill and honesty in the selection of pure lymph, from the udder of a heifer inflamed by twenty or more vaccine vesicles, than the intelligent family physician, himself, charging quills or threads with lymph, or preserving the crusts from the arms of healthy children, who have passed through, under his own eye, mild and typical Jennerian vaccinia? Yet, in violation of the suggestions of common sense, it is now not unfrequent that family physicians are called upon by their patrons, (perhaps highly intelligent on other than medical topics) to vaccinate with the product of some distant bovine farm, which they have purchased in the first and cheapest market they could find, utterly ignoring the judgment of their medical advisers, and the courtesy due them as such.

If the general practitioners of the community are to be held responsible, which they ought to be, for the prophylaxis against small-pox, so far as it can be secured by vaccination, they owe it to themselves and their high calling to see that genuine virus is procured, and that their own reputation and the value of Jenner's grand discovery shall not be depreciated through the malpractice of mercenary speculators, who intrude upon public attention their mis-statements, and their enterprising schemes to make money by false assertions calculated to arouse the prejudices and excite unreasonably the fears of the laity.

In view of the fact that our western neighbors in Old and New Mexico, at all times, have small-pox among them, it is of great moment that the medical profession of Texas shall be ever on the alert to detect cases imported into the State; to see that they are isolated, and to prevent the spread of the disease, by urging vaccination. But unless vaccine virus that is known to be unadulterated with ordinary pus, putrid serum, or blood, is culti-

vated in the State, and by the profession, and for whose purity and mildness the reputable members thereof can avouch, it cannot be expected that general vaccination will be practiced. If vaccination can only be practiced, as seems now to be the case, when there is a small-pox scare, the number of non-vaccinated persons must yearly increase, and some time, in the not very distant future, we may look for small-pox, like a wolf from his lair, to pounce down unexpectedly upon the unprotected populations of our cities, and slay its thousands of "lambs" who have been so educated into a fear of vaccination with humanized virus, cultivated by their own physicians, that they fail to submit to it except when immediate danger threatens. The pamphlets and circulars of the cultivators and vendors of bovine vaccine virus are doing more to bring vaccination into disrepute and disfavor than to encourage its universal practice.

The State Medical Association of Texas owes a duty to the profession and to humanity in the premises. It should as a body, consider well what that duty is, and adopt such a policy and practice as will secure the universal vaccination of the population of all ages and races within the borders of the State. Every member of the Association owes it to his clientage to investigate the subject of vaccination from the standpoint of experience, and not allow that clientage to be duped by the *ex parte* statements of interested speculators. They should cultivate and propagate genuine and benign vaccine virus, and, by a system of interchanges, supply each other in emergencies, free of charge, with an article they can avouch for. Thus the mercenary traffic in vaccine virus, which should never have been countenanced, will be stopped, and thousands of dollars be annually saved to the people of Texas, who are, perhaps, now, and will be, for some years to come, more exposed to small-pox than inhabitants of any other State in the Union.

It is not necessary, in my opinion, that there shall be any legislation on the subject. The discovery of the immortal Jenner entailed upon us the duty of seeing that

humanity receives due benefit therefrom. Jenner did not patent that discovery, and it is part of the trust entailed upon us to see that it is not prostituted by monopolists for the mere purpose of money-getting, by advertising devices calculated to bring it into disrepute, and place it upon a level with the wares of the venders of patent medicines, and non-secret compounds with which they are duping the people and increasing the cost of remedies to the laity, while they are dwarfing the reputation of rational medicine, and depreciating the usefulness and efficiency of intelligent, laborious and conscientious practitioners of a noble and humane profession.—From *Texas State Medical Association*, April, 1886.

RUBELLA (RÖTHELN).¹

BY I. E. ATKINSON, M.D.

Professor of Materia Medica and Therapeutics, etc., in the University of Maryland; Member of the American Dermatological Association; Member of the Association of American Physicians, etc.

While the broad lines separating measles and scarlatina are universally recognized, there has been anything but harmony among writers concerning certain anomalous forms of eruptive fever prevailing from time to time which present mingled characters of the two affections, or which appear to present the features of an independent affection. Ever since the middle of the last century, they have attracted much attention, and while, for the most part, they have been considered as aberrant forms of measles or scarlatina, there can be noticed a constantly recurring disposition to gather together, under a special designation, certain cases prevailing sporadically or epidemically, which seemed to offer peculiarities distinguishing them from those two diseases. According to Emminghaus, de

¹ Read at the tenth annual meeting of the American Dermatological Association, August 26, 1886.

Bergen (*de roscolis*), in 1752, was in favor of separating rötheln from scarlatina and measles.¹ Selle, in 1780 declared rötheln to be an independent affection. The question was discussed by various writers, among whom were Zeigler (1788), Thompson (Edinburgh, 1800), Fleisch (1804), Strohmeyer, and others. They all, however, described dangerous affections which seem to have been abnormal forms of scarlatina, but which differed widely in their symptomatology. In Hufeland and Henle's *Journal* (1812) Heim wrote concerning "the difference between scarlatina, rötheln, and measles." Willan, in his account of *rubeola sine catarrho*, observed that it did not protect from measles. Bateman made it a variety of this disorder, but Maton, in 1815, recognized its independent nature (Squire). In 1818, however, Henle pronounced rötheln a variety of scarlatina.

A number of writers now successively described epidemics of benign macular eruptions, neither measles nor scarlatina, which did not afford protection from these diseases, attacking all alike, but which nearly always appeared when measles or scarlet fever prevailed, or had preceded or followed by short intervals, in localities proximate to where these exanthems were to be found. In 1822, Schönlein, for example, noted that in the "Rhein-provinz" measles was rife; beyond the Elbe, scarlet fever; and between these two districts, rötheln. G. v. d. Busche described an epidemic (1841), beginning with measles, at the height of which rötheln appeared, and when this reached its acme scarlatina became active. Gertsema, in Groningen, in 1821, and again in 1834, had seen similar epidemics; likewise Wagner and Paasch (1854). Schönlein had tried to harmonize the discordant opinions by regarding rötheln as a disease in which the relations between the skin and mucous membrane were such that when scarlatinal symptoms developed upon the skin the mucous membrane showed those of measles, and *vice versa*.

¹ I am indebted to the articles of Emminghaus (*Jahrb. f. Kinderheilk*, 1870, 1871, N. F. 4, S. 47, and Gerhardt's *Handbuch f. Kinderkr.* 1877, B. 2, S. 336), and of Klaatseh (*Zeitsch. f. Klin. Med.* 1885, 10, 1), for most of my historical references.

Gradually, all affections having a red macular eruption and not recognizable as measles or scarlatina, came to be described as rötheln, and great confusion resulted. Some writers, even, were induced to fall back upon the old teaching of the identity of measles and scarlatina. The identity of rötheln seemed quite disproved, especially when Hebra entirely discredited its specific existence, and Wunderleich spoke of rötheln as a synonym for measles. Gelmo,¹ having observed anomalous epidemics in Vienna in 1848, 1851, and 1857, of which the features were most perplexing, concluded that, although eruptive forms characteristic neither of measles nor of scarlatina, develop during the transitions of epidemics of measles and scarlatina, epidemics of one or the other of these affections grew out of them always; that isolated cases, anomalies of scarlatina or measles, could not justify the establishment of a separate species; and that, finally, no grounds existed for considering rötheln a distinct disease. Kostlein,² as late as 1865, held rötheln to be a variety of measles.

Balfour,³ however, in 1857, regarded rötheln as a special disease, and in 1864, Grove⁴ and Thierfelder⁵ wrote of it. Veale,⁶ in 1866, Schwarz⁷ in 1868, Oesterreich⁸ in the same year, Mettenheimer,⁹ Steiner,¹⁰ and especially Thomas,¹¹ in 1869, and Emminghaus,¹² in 1870, rapidly followed in a series of able articles that forthwith rescued rötheln from the oblivion in which previous writers had threatened to overwhelm it. In 1870, Murchison¹³ contributed an article upon this subject, since which time many British physicians have devoted attention to it. Among them may be noted Fox,¹⁴ Liveing,¹⁵ Cheadle,¹⁶ Squire,¹⁷ and Tonge-Smith.¹⁸ In France, until recently, rötheln attracted little

¹ Jahrb. f. Kinderheilk., Wien, 1858, Bd. 1, 152.

² Wiener Med. Presse, 1868, 13.

³ Edinb. Med. Journ., 1857, p. 718. ⁴ Lancet, 1864, 566 *et seq.*

⁵ Greifswald Medicinische Beiträge, 1864, Bd. ii.

⁶ Edinb. Med. Journ. Nov. 1866.

⁷ Wiener Med. Presse, 1868, 13.

⁸ Inaug. Dissert., Leipzig, 1868.

⁹ Journ. f. Kinderkr., 1869, 53.

¹⁰ Archiv. f. Dermatol. u. Syph. 1869, 237.

¹¹ Jahrb. f. Kinderh., 5 Jahrg.

¹² Ibid., 1870-71, N. F. 4, p. 47.

¹³ Lancet, 1870, 595.

¹⁴ Med. Times, London, 1870, 360.

¹⁵ Lancet, 1874, 360.

¹⁶ Trans. Internat. M. Cong., Lond., 1881, iv.

¹⁷ Ibid.

¹⁸ Lancet, 1883, 994.

attention. Bourneville and Bricon,¹ it is true, claim that it had long been recognized. Trousseau² regarded it as a distinct affection. It has also been considered by Trastour, Longuet, Lubanski,³ and others. In America, though, it is said to have been described by Homans, Sr., in 1845, and by Cotting in 1853 and 1871,⁴ it is to the pen of J. Lewis Smith⁵ that we owe the first systematic notice of the disease.

A large number of communications have lately appeared in the journals, adding materially to the sum of our knowledge of the disease. The excellent article by Hardaway, in Pepper's *System of Medicine*, is especially to be commended. Edward's valuable paper in the *American Journal of the American Sciences*⁶ gives an extensive bibliography of American writers upon rötheln. Important contributions have also been made by Dühring, Park, Hatfield, Harrison, and others.

Thus the "rötheln question" has only within twenty years assumed a phase that gives hope of its satisfactory solution. The recent stimulus given it, however, threatens again to relegate it to the domain of medical conundrums; for, while earlier writers were disposed to deny that rötheln was anything but aberrant measles or scarlatina, the recent tendency is to assign to it all anomalous cases and epidemics that resemble, but do not correspond with these affections. Doubtless many of these are aberrant forms, or, possibly, combinations of measles and scarlatina. The study of rötheln is thus rapidly becoming obscured by fantastic and motley embellishments, and there is reason to fear that the resulting confusion will re-awaken the early scepticism concerning it.

Definition.—Rötheln (synonyms: German measles; rubeola; rubeola notha; rubeola sine catarrho; roseola epidemica, etc.) is a specific, exanthematic, contagious disorder, characterized by a period of incubation lasting

¹ Le Prog. Méd. xii. 578.

² Clinical Lectures.

³ Union Médicale, 1884, No. 7, *et seq.*

⁴ Boston Med. and Surg. Journ., 1873; and Trans. Internat. M. Cong. London, 1881.

⁵ Archives of Dermatology, vol. i.

⁶ October, 1884.

usually from two to three weeks; a prodromal period varying from a scarcely appreciable interval to one day, less commonly two, and very rarely several days; and an eruptive period in which there is an exanthem closely resembling that of measles. A period of desquamation is in most cases wanting, and when present is but feebly developed. During the attack, and frequently preceding the eruption, there occurs almost constantly an enlargement of the cervical, submaxillary, auricular, suboccipital, and sometimes of other glands, which is often painful, but never suppurative. Catarrhal symptoms are absent, or but slightly marked. A faucial hyperemia is almost constant, but is rarely accompanied by pain. Throughout the attack fever is absent in about half of the cases, and when present rarely endures to the end of the second day, or exceeds 39° C. (102.2° F.). The attack seldom lasts longer than three or four days, and the patient rarely keeps to his bed. The affection may prevail sporadically or epidemically, and is contagious, though to a less degree than measles. One attack usually confers immunity from subsequent ones, but does not protect from measles or scarlatina nor do these exanthems confer immunity from rötheln. Children are usually affected, though adults have no special insusceptibility.

Etiology—Contagion.—Rötheln never occurs spontaneously, but is not violently contagious—far less so than measles. Steiner,¹ whose conceptions of its characteristics are especially definite, denies that it is at all contagious. V. Nymann² asserts that its contagiousness is almost *nil*. Klaatsch³ considers it not very active. Only one-half in a school of sixty scholars were attacked (Veale). Park⁴ noted that only two-thirds of those exposed to it were attacked.

Tonge-Smith⁵ regards rötheln as having a not very intense contagiousness, lasting not longer than a week. Thierfelder thought it most contagious during convales-

¹ Archiv. f. Dermatol. u. Syph., 1869, 237.

² Oesterreich. Jahrb. f. Pädiat, N. F. iv., Bd. 2, 123.

³ Zeitschr. f. Klin. Med. 1885, 10, 1.

⁴ Chicago Med. Journ. and Exam., 1881, xlii., 130. ⁵ Lancet, 1883, 994.

ence, and Squire considers it contagious even before the rash and for two or three weeks afterward. While nearly all writers admit its contagiousness, it must be admitted that as yet we know little about the period when the contagion is most active.

Age and Sex.—Rötheln attacks the sexes indifferently. Of 331 cases gathered from various sources, 151 were males and 180 females. The difference here is probably accidental. Infants are not often attacked, though Sholl¹ reports a case of an infant a few days old, and Roth one of six months. Steiner saw it in a child of six months. Lewis Smith also had infants among his patients. Seventy-two per cent. of all his cases were between the ages of two and ten years. Tonge-Smith's cases included, in a total of 145, 132 more than fifteen years old. Most observers report adult cases; Seitz² has recorded it in a woman seventy-three years old. These variations show that the time at which rötheln is most apt to occur is not a question of years, but of exposure and protection. Most reports come from asylums and children's hospitals, where but few adults are exposed. Adults unprotected by attacks of rötheln during childhood probably enjoy no immunity. Kassowitz,³ however, noted but five adults among his sixty-four cases in private practice.

Relation to other Eruptive Fevers.—It has been urged against the specific identity of rötheln that it tends to prevail with or immediately before or after epidemics of scarlatina or measles. This tendency was especially noted by earlier writers, whose descriptions suggest that they had reference to anomalous forms of measles or scarlatina, quite as often as to rötheln. The same tendency, however, has been observed by those who entertain definite views of the nature of rötheln; but as rötheln is observed quite independently of prevailing epidemics of either of these diseases, it seems probable that these are coincidences without significance, and have an analogue in

¹ Transact. Med. Soc. Alabama, 1881.

² Ziemssen's Cyclop.

³ Trans. Internat. Med. Cong. London, 1881, iv. p. 10.

similar coincident prevalence of other eruptive fevers. It is a point of the greatest importance, however, that, although rötheln often closely corresponds in point of time with measles or scarlatina, the diseases are not mutually protective. Those who have had the latter affections are as susceptible of rötheln as those who have not, and an attack of the last-named disorder in no wise lessens the liability to either of the former. This is universally admitted. Of Steiner's 21 cases, 6 had had scarlet fever and measles, and 7 had had measles alone; of Thomas's 23 cases, 12 had had measles, and 3 scarlatina; of 48 cases recorded by Lewis Smith, 19 had had measles, and 1 contracted measles one month subsequently. Dukes¹ noted 63 cases in 1877, of which 39 had had measles, and 25 cases in 1878, of whom 22 had had measles. Of 19 cases under the observation of Roth,² 7 had had measles within seven or eight weeks; and Rott³ reported 17 cases, of which 16 had already had measles. Of Veale's 30 cases, 13 had had measles. Shuttleworth⁴ noted that of his 31 cases, 11 had already had measles, and 7 measles and scarlatina. Subsequently 2 of these patients had measles, 5 measles and scarlatina, and 2 scarlatina only. Most of Parks's 100 cases had had measles during the previous winter or spring. There is thus abundant evidence that no immunity is afforded by an attack of rötheln against measles and scarlatina, and *vice versâ*. Indeed, the second malady sometimes follows closely upon the heels of the first.

Incubation.—This is longer than is usual with the exanthemata, though wide variations are observed. Robinson⁵ determined in his cases a period of 6 to 7 days. Bristowe⁶ considers incubation to last one week; Edwards,⁷ about 10 days (shortest incubation 6 days, the longest 21 days); Lewis Smith, from 7 to 21 days; Squire, from 14 days to 3 weeks; Tonge-Smith, in 10 cases, noted an incubation

¹ Lancet, 1881, 745.

² Deutsch. Archiv. f. Klin. Med., 14, 539.

³ Aertzl. Intelligenz-Blatt, 1879, x. p. 101.

⁴ Transact. Internat. Med. Cong., London, 1881, iv.

⁵ Medical Times and Gazette, 1880.

⁶ Practice of Medicine.

⁷ Zeitschr. f. Klin. Med. 1885, 10, 1.

of 14 days; Dukes, in 36 cases, from 12 to 22 days. Roth estimates it at 18 to 19 days. Klaatsch¹ has noted a period of 14 days often, also of 17 to 22 days, and sometimes more than 4 weeks. Thomas² places it from 2½ to 3 weeks, probably never longer—never less. Emminghaus³ definitely determined the incubation in most of his cases to be 18 days; in some, 14 days, in others as much as 20 days. Veale's cases had an incubation of 12 days. In a series of 30 cases, Balfour noted 14 days as the incubative period; Duckworth⁴ placed it at 16 days; Jacobi,⁵ at 14 to 21 days. A comparison of these figures shows the incubative period of rötheln more often to exceed than to fall short of 14 days. Some writers place it definitely at 18 to 21 days, but general experience appears not to justify such rigid limits. For the present, therefore, we place the incubative period of rötheln at from 14 to 21 days, sometimes less, rarely more.

Period of Invasion. Prodromal Stage.—In many cases no appreciable prodromal stage is present, the eruption giving the first intimation of disorder. As this is usually observed in the morning, just after the night's rest, it is probable that brief prodromes may have occurred during sleep. Occasionally, prodromes may really be absent, but in the great majority of cases, symptoms of slight intensity may be observed from a half to one day before the eruption appears; rarely prodromata last for several days. Steiner has asserted that there is no prodromal stage. Klaatsch and v. Nymann state that the eruption usually appears without prodromes; the latter rarely observed an initial chill one or two days before the eruption. Thomas asserted that this stage lasts from two hours to a half-day at most. Rott observed a prodromal stage of from a half to one day; Roth, of from a half to three days. Veale's cases showed the eruption on the first day. While Emminghaus often observed no prodromes, he, with Mettenheimer and Thierfelder usually noted them from one

¹ Loc. Cit.² Jahrb. f. Kinderheilk, 5 Jahrg, 4 H.³ Gerhardt's Handbuch f. Kinderkr, B. 2.⁴ Lancet, 1880.⁵ Transactions American Medical Associations, 1881.

to three days preceding the eruption. Lewis Smith observed them some hours, or a day, or even longer. Parks saw no definite premonitory symptoms. Squire saw the eruption on the first day. In Edwards's cases, the average was three days; in Hemming's, from a few hours to three, four, even five days; in Cheadle's, from two to three days.

These observations show that rötheln is either without a prodromal stage or has one not exceeding twenty-four hours in most cases. This characteristic at once stamps the disease with a specific feature. The premonitory symptoms are usually limited to slight malaise, with headache, joint pains, giddiness, faintness, anorexia, and rarely nausea and vomiting; very exceptionally convulsions are noted (Smith, Lindwurm, Edwards). Shivering and an initial chill¹ may begin the attack. Smarting of the eyes and slight photophobia may occur, but beyond conjunctival injection, catarrhal symptoms are generally absent; sneezing, snuffling, cough and hoarseness, and even croupy attacks (Balfour) may develop. The tongue is slightly coated with a dull whitish fur. Often at this stage mild pharyngeal distress is experienced and the fauces show a diffused or a maculated hyperemia.

A common symptom of this stage is the adenopathy characteristic of the stage of eruption, involving the occipital, posterior, and anterior auricular, submaxillary, cervical, and often other glands. These become enlarged to the size of coffee-grains or larger, are tender, and may occasion swelling and stiffness of the neck. This may be the most striking symptom of this stage and may attract attention several days before the eruption appears. It is however, not constant. In many cases fever is absent. Very often it is present to a slight extent and may subside before the beginning of the eruption (Emminghaus). In 20.1 per cent. of v. Nyman's cases it lasted only 24 hours, but was absent altogether throughout the attack in 48.73 per cent. All of Emminghaus's cases began with fever, rarely exceeding 38.5° C. (101.3° F.), and rarely reaching this point. When prodromes were prolonged into the

¹ Initial chill was observed in 15.46 per cent. of v. Nyman's cases.

second day, this writer noted a morning remission passing into an exacerbation as the eruption appeared. Edwards observed epistaxis among the prodromes, three times. This author thought that the prodromal symptoms increased in severity until the eruption appeared; but it is to be noted that the intensity of these symptoms bears no fixed relation to the severity of the subsequent course of the disease. Characteristic of rötheln, however, is the short duration or entire absence of febrile symptoms previous to the appearance of the eruption.¹

Stage of Eruption.—Very often the patient is unconscious of his attack until accident reveals the eruption. In the great majority of cases upon awakening in the morning he feels unwell, and discovers the eruption upon examining his body at once, or after a brief prodromal period. It usually appears first upon the forehead and temples, rapidly extending over the face and neck; in a few hours spreads to the trunk, and thence to the upper and lower limbs. It becomes visible as pale pinkish-red macules of minute size. A faintly reddened condition of the parts first invaded may precede the exanthem. Emminghaus noted a ring of efflorescence around the neck, sending prolongations between the scapula and over the breast between the nipples. Exceptionally the eruption may bloom out at once over the whole surface, but almost always it attains its maximum upon different parts unequally and in the order of evolution. Upon the trunk and extremities the lesions may be at their height, while upon the head and neck they may have almost disappeared, or the reverse may occur when, as rarely happens,² the latter parts are last invaded. It is so fugaceous that by this maximum intensity in different parts it affords a striking contrast with what occurs in measles usually. This evanescence has probably served to foster Heim's erroneous theory of "a local rötheln."

The eruption of rötheln is by no means uniform, and a recognition of this fact is essential to a correct appreciation of the affection. Various eruptive types have been

¹ Duckworth, *Lancet*, 1874, 1, p. 360.

² Tonge-Smith.

described, for convenience, but almost invariably a more or less irregular development is observed. It is in the mildest and afebrile cases that the eruption becomes most characteristic. It then acquires a punctate appearance and a pale rose color. At first the spots do not contrast markedly with the unaffected portions of the skin, but soon they acquire a brighter color and more definiteness. They have a rounded appearance, and are not grouped into crescentic shapes, as in measles. They vary from pin-head to hemp-seed size and larger, and have been compared by Paterson, of Leith and Heim, to the effect obtained by touching white blotting-paper with a pen charged with red ink. Their color, however, is not so brilliant, and their outline by no means so regularly circular as the comparison would indicate.

In mild cases they may remain isolated almost throughout. Here and there they become confluent, and in more pronounced cases confluence is frequently observed. There is always some, and sometimes marked elevation of the lesions, but the papules remain soft. By a strong and oblique light the irregular elevations may be plainly seen. The lesions are sometimes larger. They are then apt to lose the circular outline, and may be twice the size of the smaller lesions. Each spot is surrounded by an areola, and is more vividly colored toward the centre in consequence. The eruption is most abundant on the face, chest, nates, and often on the arms, forearms, and flexor surface of the thighs. The color is most vivid above, but is often intensified by the warmth of the clothing. The patches often increase in area and coalesce, and may then simulate the rash of scarlatina. The original lesions may be distinguished by pressing the surface firmly with the finger, when they will be seen to become less anemic under the pressure than the surrounding parts (Heim). Large plaques of continuous eruptions differ from the scarlatinal efflorescence in being paler, and in never prevailing to such a degree that the predominating maculopapular character is not shown in parts less extensively invaded. They may often involve the flexor surface of

the forearms. Often the eruption resembles that of mild measles so much that the candid observer cannot distinguish it. However, it almost never assumes the dark raspberry coloration of this affection. Dunlap has observed petechial lesions, but these are most rare.

The eruption attains its full development in a few hours, and very often fades before the second day. As it fades, it assumes a duller pinkish-brown color, which is gradually replaced by a pale pigmentation, which may last several days. As the confluent eruption acquires this coloration, a striking appearance of marbling results by contrast with the unaffected skin, a condition noted by a number of writers. Not very uncommonly many of the maculo-papules become tipped with vesicles or vesicopustules (Hardaway, Klaatsch, Edwards, Thomas). These are small, and accumulate and desiccate early. From the beginning to the final disappearance of the eruption the usual period is from three to four days. In v. Nymann's case it had a duration of—

1 day in 10 cases	.	.	.	.	=	8.40	per cent.
2 days in 29 "	.	.	.	.	=	24.36	"
3 " " 31 "	.	.	.	.	=	26.65	"
4 " " 33 "	.	.	.	.	=	27.73	"
5 " " 12 "	.	.	.	.	=	10.08	"
6 " " 3 "	.	.	.	.	=	2.52	"
7 " " 1 "	.	.	.	.	=	0.55	"

A more protracted eruptive stage has been noted (Living, 8–10 days; Edwards, 15 days). It is probable, however, that such cases are examples of unusually intense and persistent pigmentation following the hyperemia. Though the eruption lasts two, three, or four days altogether, it is very transitory on the different parts, not often remaining more than twenty-four hours in any one locality; thus, it has frequently faded from the face when in full bloom upon the trunk, and before it had developed upon the extremities. It is important to remember that the cases with most marked general symptoms are not always those in which the eruption is most intense and persistent. The rash is not commonly attended by itching, a slight tingling or burning sensation is at most complained of.

While the eruption undergoes its development, other important symptoms appear. We have seen that fever may be absent throughout. Most patients, however, exhibit a slight rise of temperature. In a few, this has already fallen to normal when the eruption appears. In most the acme of fever corresponds, not to a period of free efflorescence, but is observed during the first day.¹ In Reid's observations, quoted by Smith, the temperature ranged in 17 cases from 97° F. to 99° F., and in 6 cases from 100° F. to 100½° F., and in only 1 case reached 103½° F. (on the second day). According to Tonge-Smith, the temperature rarely exceeds 100° F. Edwards observed a common rise of from 1° F. to 3° F.; rarely it reached 103°–104° F. Hemming rarely saw it exceed 101° F. While Roth considers absence of fever the characteristic condition, he has seen a temperature of 38.3° C. (100.9° F.) In only 2 of v. Nymann's 119 cases was 39.5° C. (103.1° F.) indicated. Only one-half of Klaatsch's cases had fever, and they only during one day (38° C. seldom 39° C. (100.4°–102.2° F.), in the axilla) All of Emminghaus's cases had fever, seldom exceeding 1.5° C. (2.7° F.) rise, and rarely attaining it. In Kassowitz's cases an elevation of 1.5°–1.8° C. (2.7°–3.2° F.) in the axilla was constantly observed. In all cases efflorescence was complete on the second or third day. Rott observed no fever except in complicated cases. On the other hand, high temperature was noted by E. Long Fox (103° F.), Robinson (103°–104° F.), Edwards, and others. It may be stated, as a rule, that the temperature in rötheln does not exceed 100° F. Slight exacerbations of fractions of a degree may be recorded as the parts are successively invaded by the eruption, but, upon the whole, rapid defervescence follows, the normal being reached, except after complications, before the completion of the eruption.

Conjunctival hyperemia, usually developed in the prodromal stage, when such is present, persists with a

¹ E. Long Fox; however, declares that the highest temperature usually corresponds with the maximum eruption.

sense of smarting during the attack. Lachrymation and photophobia are uncommon. Nasal, buccal, laryngeal, tracheal and bronchial catarrh are absent, as a rule, in milder cases. At other times, there is mild catarrh of these surfaces (Thomas). Lewis Smith noticed catarrh of the nasal, buccal and faucial, but not of the laryngeal, tracheal or bronchial mucous membrane. Park observed bronchial irritation in about ten per cent. of his cases with conjunctival suffusion, and had he not known that the same children had had measles, he would have been tempted to diagnosticate these cases as such. It may be concluded that although absence of catarrhal inflammation cannot be regarded as typical of rötheln, this complication is vastly less pronounced than with measles, and affords a striking contrast between these affections. The faucial mucous membrane, however, is almost constantly implicated in rötheln. Nearly all writers have observed this. Schwarz¹ thought he had established a diagnostic point between rötheln and measles in indicating in the latter affection upon the faucial mucous membrane, pinhead to hempseed and lentil-sized spots, discrete and reddish, but at times confluent and irregular, which are not seldom observed before the eruption. This undoubtedly holds for measles, but it is valueless for diagnosis, for the throat eruption of rötheln often exactly resembles that of measles. It is true, the usual appearance of the fauces in rötheln is of a diffuse redness, like that of mild pharyngeal catarrh, or of mild scarlatina. This is unaccompanied by much swelling or difficulty of deglutition; there may, indeed, be no subjective faucial symptoms. But quite as often, this eruption is like that of measles,² or the throat may have a streaked appearance. The redness extends to the palate, throat, tonsils and larynx, but hardly ever exceeds simple hyperemia. Lewis Smith, however, has seen mild diphtheritic inflammation. While the faucial efflorescence cannot be considered essentially different from that of

¹ Wiener med. Presse, 1863, ix. 302.

² Lör, Jahrb. f. Kinderheilk, 1882-83, N. F. xix.

measles, it is sufficiently marked to constitute a characteristic symptom of rötheln. Usually very transitory, it may persist after the subsidence of the eruption. It is more often diffuse than macular. Faucial redness was absent in only 11 of v. Nymann's cases. It disappears almost invariably by the fourth day of the disease.¹

The digestive tract remains about as in the stage of prodromes. The tongue is rather coated, often showing a few red papillæ toward the tip. In severe cases it may become dry and brownish. The appetite and digestion are frequently hardly impaired. When fever is at all marked, the digestive tract may suffer in proportion to the degree of derangement incident to the febrile condition. A very remarkable adenopathy gives rötheln one of its most distinctive symptoms. This often precedes the eruption; more often it appears as this develops, and consists in a painful, but never suppurative, enlargement of the cervical, submaxillary, anterior and posterior auricular and occipital glands. The enlargement of these glands, with the eruption, often gives the patient a swollen, bloated appearance, and occasions troublesome "stiffness of the neck." Occasionally, the axillary, epitrochlear, inguinal and popliteal glands are also enlarged (Tonge-Smith, Klaatsch). Trastour attributes to Bloch, of Denmark, the first description of this adenopathy. Klaatsch declares it so constant, that, in the dark, with the knowledge that an acute exanthem was present, the diagnosis of rötheln can be made from it alone. Hardaway has never found it absent. It appears to vary, however, in the constancy of its occurrence in different epidemics. Park saw it in about fifty per cent. of his cases; Kassowitz, in about thirty-three per cent.; Emminghaus noted its frequent occurrence. Thomas believes it to be frequent, but by no means constant. V. Nymann, however, did not observe it in his cases. Its usual presence is almost universally admitted. It must not be forgotten, however, that similar adenopathies are sometimes seen in measles. Its extent is not at all

¹ Tonge-Smith observed secondary sore throat on the fourth or fifth day.

proportionate to the character and intensity of concomitant symptoms. Not rarely it is the first and only symptom to attract the patient's attention. It may not be amiss to suggest here that some of the peculiar, acute and transitory multiple glandular enlargements about the head and neck, with eruption, but with mild fever and tenderness, that sometimes prevail extensively, the etiological relation of which have eluded identification, *may* depend upon rötheln. The glands speedily lose their sensitiveness and diminish in size.

Kingsley, Harrison, Duckworth, and Edwards have reported albuminuria as occurring during the attack. The latter writer noticed it in thirty per cent. of his cases. In nine it was pronounced and accompanied by dropsy. Such observations are altogether exceptional and were probably due to local influences. Emminghaus observed slight albuminuria in one case. In two of five cases Duckworth observed transitory albuminuria. Most observers have never seen it complicate rötheln.

In many cases the eruption fades and leaves no trace. It is a peculiar feature of röthlen that, probably in the greater number of cases, desquamation fails to occur. This is not to be ascribed to any inherent property of the affection, but it is due to the trivial degree of hyperemia usually experienced. After more intense efflorescence, desquamation undoubtedly occurs, though so scantily that careful observation is often required to detect it. Steiner asserts, indeed, that there is no desquamation; Oesterreich, that it is almost absent; Squire, that there is almost none; Roth, that it is exceedingly uncommon; Robinson, that it is slight, and is imperceptible in mild cases; v. Nymann, that there is none; Emminghaus, that there is no notable desquamation, but that in most cases a slight furfuraceous scaling exists. Wagner, de Man, Balfour, Thierfelder, Mettenheimer, Lindwurm, Veale, and Arnold hold similar views. Henny noted more or less branny desquamation, lasting five to twelve or fifteen days. Trastour describes it as furfuraceous, as also does Edwards. Hardaway states that a fine desqua-

mation follows, but by no means invariably. It becomes evident that the usual absence of desquamation does not partake of the nature of a peculiar feature of the disease. When present, it is most commonly observed in depressed areas of the surface, as behind the clavicles or parts but little exposed to friction. Nearly all patients remain up and about the house during the attack and convalesce at once. The persistence of fever after the fourth day, or its recrudescence, should arouse apprehensions of complications.

Complications and Sequelæ are not unknown. The possible occurrence of nephritic trouble has already been noticed. The most common complications are exaggerations of the catarrhal disorders, bronchitis, pneumonia, gastro-intestinal inflammation. Numerous other complications have been recorded, but may generally be considered rather as accidents than as having specific dependence upon rötheln. Klaatsch quotes Kronenberg as reporting four deaths from bronchitis, pneumonia, and cerebral congestion after rötheln. Rott observed that mumps frequently followed the exanthem in from three to five days. Edwards observed enteritis and thrush in his cases. Slight œdema (face and legs) and even general dropsy have been known to follow. Hardaway has seen otorrhea and ciliary blepharitis. Nasal and buccal catarrh may constitute sequelæ. Very rarely relapses of rötheln are observed. They occur immediately or after several days, not later than a fortnight. (Emminghaus.)

Pathological Anatomy.—The usually trivial character of the disease has not tended to awaken especial interest in its pathology or to afford opportunities to study its lesions. Thomas states, in a general way, that the eruption is due "to capillary hyperemia of the papillary body and of the uppermost layers of the corium; this can give rise to slight inflammation and exudation between the uppermost stratum of the corium and the epidermis, but it only occurs exceptionally in a few cases and then only on single parts of the body, and involving only a minority of

the spots."¹ Nothing is known of the specific principle of rötheln.

Prognosis.—This is almost invariably favorable: Tonge-Smith reported no deaths in 145 cases; Park, none in 100 cases. Thomas says the prognosis is "thoroughly favorable." V. Nymann, Steiner, Oesterreich, Emminghaus, Hardaway, Robinson, and, indeed, nearly all writers agree that it is the mildest of the exanthemata.

Diagnosis.—The differential diagnosis of rötheln is not difficult except as regards measles. Here, however, it is most obscure, and can only be made with satisfaction after consideration of all concomitant circumstances. Speaking generally, broad rules may be established and relied upon as pretty constantly correct. When, however, the diagnosis has to be made for the individual and isolated case, it must be admitted that we have no positive and characteristic signs for rötheln; but the typical course of the affection markedly differs from that of measles, as is shown in the following table:

RÖTHELN.

MEASLES.

Contagiousness.

Feebly contagious.

Violently contagious.

Incubative Stage.

Usually from fourteen to twenty-one days. Often, however, less, but hardly ever less than one week. Rarely longer than twenty-one days.

Usually from nine to ten days. It may be only seven days or as much as eleven or twelve days. Very rarely less or more than these extremes.

Prodromal Stage.

Very often none. Usually from one-half to two days. May be prolonged in rare cases to three, four, or even five days.

The eruption usually appears on the fourth day, sometimes earlier, rarely later.

¹ Ziemssen's Cyclopædia, vol. ii., p. 137.

RÖTHELN.

MEASLES.

Catarrh.

Frequently absent or limited to slight conjunctival hyperemia. Nasal, faucial and bronchial irritation rarely pronounced.

Almost invariably present, affecting conjunctiva and respiratory passages. May be slight, but usually much more severe in mild cases of measles than in severe cases of rötheln.

Lymphatic System.

Painful enlargement of occipital, auricular, cervical, submaxillary, and occasionally of other glands; quite constant during eruptive and frequent during prodromal stage.

Painful enlargement of these glands decidedly uncommon.

Circulatory System.

Temperature very often normal throughout. Rarely exceeds 100° F. (37.8° C.). High temperatures only exceptionally observed. Maximum fever corresponds to development of eruption during first two days and does not necessarily correspond to maximum eruption. The fever rarely endures beyond the third day.

Fever always present, often intense. Maximum fever corresponds with maximum eruption on the sixth day. Defervescence rarely complete before seventh or eighth day.

Eruption.

Appears on the first, second or third day, rarely later. Often disappears from parts first invaded before other parts are attacked. It is pale rose-red in color, and only rarely assumes a dusky red. It is usually discrete, sometimes diffuse. In the former case the lesions are papulo-macular and generally circular, and do not tend to form crescentic groups. In the latter cases, they often coalesce by fusion of their borders and form pale red continuous surfaces. These are not, however, universal and are always associated with the discrete rose-colored spots, which are not uniform in size and not always circular, but may be angular and measles-like. The eruption rarely persists beyond the third day and is often completed in forty-eight hours, but may last longer.

The eruption almost always appears on the fourth day, sometimes earlier, sometimes later. The lesions remain in full efflorescence until the maximum is attained, usually during the sixth day, when they begin to fade with the beginning of defervescence. They are papular and tend to form crescentic groups, at least on the face, neck and upper portion of the trunk. They are mostly of a dark raspberry color, and are very irregular in outline. They may coalesce into patches of dusky redness. Rarely the eruption may be pale in color or more circular and discrete.

(To be Concluded.)

THE
ARCHIVES OF PEDIATRICS

VOL. 3.]

DECEMBER, 1886.

[No. 12.

Original Communications.

RUBELLA (RÖTHELN).¹

BY I. E. ATKINSON, M.D.

Professor of Materia Medica and Therapeutics, etc., in the University of Maryland; Member of the American Dermatological Association; Member of the Association of American Physicians, etc.

[CONTINUED FROM PAGE 694, NOVEMBER NUMBER.]

Faucial Irritation.

Sore throat is present in nearly all cases, but hardly ever occasions difficulty in deglutition. A punctate, or papular, or diffused eruption appears upon the faucial mucous membrane. This may precede the cutaneous eruption.

Sore throat is uncommon, yet from eighteen to twenty-four hours before the cutaneous eruption appears, there may be seen small, hempseed-sized papules and macules scattered over the faucial mucous membrane.

Complications.

Very unusual; when present, generally involve the respiratory tract.

Very common, generally involving the respiratory tract.

Desquamation.

But rarely observed and then as almost imperceptible branny scales.

Branny desquamation constant and lasting several days.

¹ Read at the tenth annual meeting of the American Dermatological Association, August 26, 1886.

Careful consideration of the two diseases shows that while the general points of difference are decided, they will often fail to apply in individual cases. There is no feature of either affection that may not be sometimes observed in the other, whether it belong to the incubative, preëruptive, eruptive, or desquamative stages. This cannot be too much insisted upon, and to disregard it is to expose one's self to almost certain error. The incubative stage of rötheln may be brief, that of measles protracted; the preëruptive stage of the one may be lengthened, that of the other shortened; the catarrh of measles may be insignificant, that of rötheln pronounced; fever may be slight or intense in each disease; in both, the eruption may appear early or late and may run a brief or prolonged course. Departures from typical eruption may be observed in either, and the features supposed to be peculiar to one may, in reality, not seldom appear in the other. The faucial eruptions are not essentially different. Even the adenopathy supposed to be so characteristic of rötheln may be encountered in measles. Finally, desquamation may be absent in measles, it often occurs in rötheln. Klaatsch insists upon, as constant symptoms, conjunctival injection, redness of the fauces, and swelling of the lymph glands; but these symptoms offer no distinguishing characteristics. Are there, then, no peculiar signs upon which a diagnosis may be based with certainty? Considered separately, we must confess that there are none. Taken together, the symptom-complex would enable one to speak with perfect confidence only in presence of the following conditions, viz.: (1) The prevalence of an epidemic in which the history and symptomatology of the disease correspond to a type similar to that laid down in these pages, and (2) the infection of persons exposed to it quite irrespective of previous attacks of measles.

During an epidemic of measles, it must always be unwise to diagnosticate unhesitatingly, as rötheln, a single case in which the course and history of this affection may be observed; for, without doubt, such attacks often follow

exposure to measles and communicate measles to others. On the other hand, in an epidemic in which the same course and symptoms are generally observed, and in which all exposed persons are attacked, irrespective of previous attacks of measles, the diagnosis of rötheln may be made with certainty. Between prevailing measles and prevailing rötheln there are differences that usually permit the pathological relationships of given cases to be determined without difficulty. The symptoms typical of rötheln may also usually be recognized in those who have already experienced an attack of measles, even when occurring sporadically; but of isolated cases, occurring in those who have already had neither measles nor rötheln, one should not venture to speak of more than probability, though in many cases this may be done with some degree of confidence. If one makes the test for rötheln, in a person suffering from a measles-like attack, the fact that he has already had measles, as has been done formerly, and is again being done by some writers, he introduces an unscientific element into the study of the disease that *must* entail disaster. This conclusion appears almost inevitable when we consider that undoubted reinfections with measles are sufficiently known; for although older writers denied that such reinfections occur (Willan never saw them), later observers have shown that they are frequently encountered and that an individual has been known to undergo even a third attack.

Tryanski¹ noted in 200 cases of measles, 14 recurrences with intervals of from six months to seven years, the average being three years. Kassowitz reported reinfections in which the attacks closely resembled rötheln, but could be traced to exposure to measles, and from which measles was communicated to others. Similar experiences have also been reported by many other writers, among whom may be mentioned Hennig² and Schwarz³

¹ Dorpat med. Zeitschr., 1873, iii.

² Arch. f. Kinderh., 1874-76, 8.

³ Wien. med. Presse, 1876, 43-45.

(who noted recurrence of measles in eight of sixteen cases, all with the exception of one case having both attacks under his own observation). In a recent epidemic of measles at the "Home of the Friendless," in Baltimore, under the writer's observation, of thirty-one children attacked with measles five had a return of symptoms within six weeks; in each case the second attack was exceedingly mild, presenting features that might perfectly well have justified a diagnosis of rötheln, with this difference, however: of all the children exposed only these five developed the second eruption, a result that would not have been observed had rötheln been the cause of it. These considerations, however, bear only upon the relations of sporadic cases of rötheln. Recurrent measles is uncommon, and is quite unknown as of epidemic occurrence.

There occur, it is true, in epidemics and sporadically, cases resembling measles and yet unlike it, attacking alike those who have had and those who have not had measles, yet in important particulars differing from all of the acute exanthemata as we now understand them.¹ Such cases, it is said, cannot belong to measles, since those who have already had this affection are not protected. They are of uncommon occurrence, and eventually will probably prove to be bastard forms of measles or scarlatina, or possibly some, as yet not understood, disorder, or results of the concurrent activity of more than one specific affection; at all events, we are not justified in recognizing them as rötheln until clinical observation has demonstrated them to be such.

Scarlatina differs from rötheln in its shorter incubation, its violently febrile onset, the intensity of the throat symptoms, the peculiar condition of the tongue, the character and longer duration of the

¹ Cheadle, for example, has described an epidemic affecting many who had already had measles, the symptoms of which were remarkable for their intensity, and presented peculiarities unlike those described by nearly all writers upon rötheln. If the patients had not already had measles, one would never have called the affection rötheln. It would even seem more probable that Cheadle treated measles in those who had already had rötheln.

eruption and fever, the copious desquamation, and the peculiar complications and sequelæ. Mild cases of scarlatina may be mistaken for rötheln, but the diffused form of eruption in this affection can offer only difficulties, and even here the spread-out red patches always pass at their margins into the easily recognized pale maculo-papules that clear away doubt. Non-specific erythematous affections are so circumscribed, or are so evidently traceable to their exciting cause, that doubt can hardly arise unless the question of idiopathic roseola, epidemic roseola, etc., be raised. The difference here will be rather of words than of meaning, since there is little doubt that this affection and rötheln are identical. Occasionally maculo-papular medicinal rashes have been mistaken for rötheln, and the writer has known the adenopathy and eruption to be looked upon as syphilitic roseola and adenopathy at first.

Treatment.—Very little treatment is ever required; indeed, but few find it necessary to keep in bed or even within doors during the attack. Treatment may be called for when complications arise. Such accidents are rare, but when present must be treated according to their necessities and without special reference to the exanthem. As the contagious properties of rötheln are not pronounced, and as they are soon exhausted, isolation, should it be desirable, need not be as protracted as with scarlatina, small-pox, measles, etc.

Conclusions.—1. Rötheln is a specific, contagious, eruptive disorder.

2. While it possesses pretty well defined characteristics, which, taken together, justify a reasonable degree of certainty in its diagnosis, it has no symptom that may not be and is not often assumed by measles.

3. A sporadic case, occurring in one who has never had measles and who affords no history of exposure to rötheln, may be diagnosticated with a fair degree of confidence, but not with absolute certainty.

4. The unqualified diagnosis of rötheln should only be made during an epidemic in which all persons exposed,

irrespective of former attacks of measles, are liable to be affected and in whom the symptoms follow a pretty uniform type. In the absence of a pronounced epidemic influence, a series of cases occurring in a household, a school or an asylum, showing typical symptoms, may be diagnosticated as rötheln with a fair degree of confidence.

5. In sporadic cases, where neither measles nor rötheln has been experienced, a diagnosis of probable measles or rötheln must be made, accordingly as the symptoms and course resemble the type of one or the other affection.

A final word of explanation and defence of the title under which this paper appears is due. Most unfortunately, the term *rubeola*, which in Germany, since the time of Hildebrandt, is universally adopted as the classical name for our affection, is to English-speaking races inseparably connected with the conception of measles. This has driven English-speaking writers to have recourse to the German word rötheln. To one unacquainted with the German language, this title is unmeaning, is not euphonious, and is a source of embarrassment. First employed by Werlhof, in 1759, it is now firmly established and definitely understood in Germany. Unable unqualifiedly to adopt "rubeola" and "rötheln," the medical public has hit upon "German measles" as designating the malady in question, and under this name it is becoming generally recognized. Yet this is a most unsatisfactory and unscientific evasion of the real issue, and implies a relationship which is not admitted. I would suggest, therefore, that the title first proposed, I believe by Veale, and afterwards by Squire, and adopted in Quain's *Dictionary*, *rubella*, be accepted as the prime name of the affection; and as "German measles" is manifestly a most objectionable designation, I also suggest that the affection be popularly known as "epidemic roseola," a term that has the advantage of age, and that was undoubtedly originally applied to it, though under a different conception of its nature.—*Am. Jour. Med. Sci.*

CLINICAL AND PATHOLOGICAL OBSERVATIONS
ON SOME CASES OF DIPHTHERIA AND
POST-DIPHTHERITIC PARALYSIS.

BY E. HYL A GREVES, M.D.,

*Late Physician to the Liverpool Infirmary for Children, and Pathologist to the
Royal Infirmary, etc.*

SINCE the publication of the *Classical Account of Diphtheria*, by Brettonau, of Tours, about 1821, numerous investigations have been made as to its nature and mode of propagation, etc.; but in regard to many points doubts still remain, and it is in the hope of throwing some light on some of the points at issue that I have ventured to bring forward the following cases:—

CASE I.—Mary Lawson, et. 3, was brought to the out-patient room of the Infirmary for Children, on November 19, 1883, suffering from post-diphtheretic paralysis.

History.—Three months ago an outbreak of diphtheria occurred in the court where the patient lived. Several children died. The patient first showed symptoms of sore throat, with difficulty of deglutition, about eight weeks since. She was extremely prostrated, and could only swallow liquids. There was no marked dyspnoea; she recovered from the throat affection, and was able to run about again, though still anemic and weak. In two or three weeks the mother noticed for the first time that the child's voice was altered in character, and that she frequently choked whilst drinking. In a few days she began to lose power in her hands and arms, and frequently let things fall. Her legs soon became affected, and she was unable to stand or walk.

State on Admission, November 19.—She is a feeble, anemic-looking child. Previous to the attack of diphtheria she was strong and healthy looking. There is a decided lack of expression, with partial ptosis on both

sides. She is unable to stand unless supported. On account of her age, it is impossible to obtain any reliable information as to her subjective symptoms, but there is evident anesthesia of both legs and feet, hands and arms. She does not feel the prick of a pin, and is quite unable to pick up a pin from a hard surface. There is complete paralysis of the soft palate, with anesthesia of tonsils, fauces and palate. Liquid food is regurgitated through the nose, and occasionally finds its way into the larynx, producing violent fits of coughing. She passes both urine and feces in bed. Patellar reflexes absent. She is unable to sit up in bed without support, and her head falls helplessly forward. Her speech is very indistinct, the only distinguishable word being "mammy." She appears to be unable to protrude her tongue beyond the teeth. She takes very little notice of what is going on around her, lying in a semi-torpid state. Respirations slow and shallow; pulse only 50 per minute, and feeble. She remained in very much the same condition for two days, and then got rapidly worse. There was great difficulty in giving nourishment by the mouth, so enemata of pancreatised milk were administered. The paralysis increased in intensity; the muscles of respiration became involved; and, finally, the diaphragm alone acted, the chest-walls remaining nearly motionless. The pulse became extremely slow and irregular, and the heart-sounds proportionally weak. She died rather suddenly, apparently from cardiac and respiratory failure.

Post-mortem Report. — Unfortunately, permission to examine the cord only was obtained.

The veins at the lower part of the cord were much congested; beyond this nothing abnormal was noted until a section of the cord was made. It was then immediately apparent that the gray matter of the lumbar region had undergone extensive softening, especially in the left half of the cord, where it had become diffuent, and literally flowed away from the surface of the section, leaving a cavity in the situation of the anterior cornu of gray matter. This condition extended throughout the

lumbar region, and also into the lower dorsal; higher up the cord the gray substance was distinctly hyperamic, but not diffuent, as in the lumbar region. The white substance of the cord appeared healthy to the naked eye; if anything, slightly hyperamic, but not nearly to the same extent as the gray matter.

Microscopical Examination.—Lumbar region: A large portion of the left crescent of gray matter was found to be completely destroyed, and a cavity left in its place, which occupied the area of the anterior cornu. The gray matter in the immediate neighborhood of the softened portion had undergone marked changes. Many of the ganglion cells of the anterior cornu were either entirely destroyed or had undergone the change known as “cloudy swelling,” while others had lost their processes, and were much diminished in size. There was also considerable increase in the number of nuclei of the neuroglia throughout the cord. The gray substance in the right half of the cord was in an early age of softening. In the dorsal and cervical regions the changes above described in the gray matter were less marked, but everywhere the ganglion cells of the anterior cornu were in a condition of “cloudy swelling.” No appreciable change was discoverable in the white matter of the cord.

Remarks.—The above case presents several points of interest. In the first place, although diphtheria attains its maximum frequency between the ages of two and six years, yet paralysis is not one of the common sequelæ at this age, but occurs most frequently in adults. Little is at present known concerning the actual pathological changes in the nervous system in this extremely interesting affection. The generally accepted opinion is that the paralysis depends upon a neuritis of the peripheral nerves, and the disease is therefore classed among the Peripheral Paralyses. Charcot and Vulpian,¹ in a case of post-diphtheritic paralysis of the soft palate, found an alteration in the nerves supplying it, their medullary

¹ *Comptes rendus de la Soc. de Biol.*, 1862.

sheaths being broken up into globular masses and granules, just as occurs in the peripheral end of a nerve after section. Similar changes have been found in the phrenic nerve by Liouville. Déjerine thinks that the changes in the nerves are secondary to changes occurring in the ganglion cells of the anterior cornu of the gray matter of the cord (which are known to preside over the nutrition of the motor nerves arising from them). This would not explain, however, the fact that the sensory nerves appear to be equally effected with the motor, giving rise to anesthesia, analgesia, etc. It is extremely probable, I think, that the morbid process starts in the peripheral nerves of the part originally affected with diphtheritic inflammation, and that this process, once started, spreads upwards along the nerves, and in extremely severe cases even extends to the central gray matter of the spinal cord, causing degenerative changes in the ganglionic cells, etc. Such a view is quite consistent with the observation of Trousseau, that paralysis may follow cutaneous diphtheria; for, in the case related by him, the limbs appear to have been affected as early as the fauces. Senator states emphatically that an abscess of the tonsil may give rise to paralysis; and Hilton Fagge relates a case of mumps which was attended with a remarkable depression of the vital functions, very like that which occurs after diphtheria. In a well-marked case of diphtheritic vulvitis, which I shall presently describe, there was marked paralysis as a sequelæ. It is to be regretted that in the case just described we were unable to obtain permission to make a thorough examination of the peripheral nerves; but, from the widely-spread paralysis, I cannot help feeling sure that marked changes would have been found in them, in addition to those found in the spinal cord.

Other authors have described a pseudo-membranous meningitis of the spinal membranes, with endo-peri-neuritis of the nerve fibres, with infiltration of the perivascular sheath, etc.

At present it is impossible to speak with any certainty

as to the manner in which the morbid process in the nerves originates. If it were in any way due to the direct influence of the diphtheritic poison (whatever that may be) upon the nerve tissues themselves, we should naturally expect its effects to be manifested at a comparatively early period of the disease; yet paralysis does not, as a rule, appear till some days, or even weeks, after the patient has thoroughly recovered from the original disease. It may be, however, that the lesion is a slowly progressive one, and only produces paralysis after reaching a certain stage.

In the case just described, the changes in the spinal cord agree closely with those found in *acute central myelitis*; indeed, it is not impossible that acute myelitis may occasionally be a complication of this disease. The changes in the cord are evidently of a very acute nature, while the history and symptoms indicate that changes of a less acute nature have been going on in the peripheral nerves and muscles for some weeks.

CASE II. *Diphtheritic Vulvitis with Post-Diphtheritic Paralysis.*—Agnes Turner, æt. 5, admitted into hospital December 18, 1884, suffering from severe vulvitis.

History.—She has never been a strong child; had measles severely two years since. About a month ago her brothers and sisters suffered from diphtheritic sore throats. Shortly after this the patient began to complain of pain and irritation about the vulva, with ulceration. This has gradually become worse. The last week or two her appetite has failed; she became rapidly weak and anemic.

State on Admission.—She is a fairly developed child, rather anemic, with peculiar vacant and semi-idiotic expression; saliva dribbling from corners of mouth; muscles extremely weak and flabby. She is unable to sit up without support, and when she does so the head falls forward in a helpless kind of manner. Arms and legs weak, but not powerless. She can just manage to feed herself. Voice has a nasal twang, liquid food occasionally finds its way into her nose. Pupils dilated and very sluggish.

Motions loose and very fetid. Pulse, 60; tension, good; temperature, 100° F. On examination of the vulva, the following condition was found:—Extending over both labia, from the fold of the groin to the fourchette, and thence along the whole length of the perineum, is a diffuse inflammation, the parts affected being considerably swollen, and of a dusky red appearance. About the middle of each labium is a circular patch of ulceration, having a distinct white membranous exudation on its surface. There is no discharge from the ulcerated surface nor from the vagina, but the parts give off an extremely fetid odor. The glands in both groins are swollen and tender; on the right side they have suppurated and opened spontaneously, leaving a sloughy-looking sore in the groin. She has never complained of her throat; but, examining it carefully, the left tonsil was seen to be reddened and slightly swollen, but no membrane could be discovered anywhere. She was placed in a reserve ward; the vulva dressed with iodoform; quinine and iron given alternately; liberal diet and port wine.

December 22.—The last two days she has become decidedly weaker, the lower extremities being almost completely paralyzed. She cannot speak audibly, and a peculiar sound is produced in the larynx during inspiration, probably produced by the air rushing between the paralyzed vocal cords, the glottis being narrowed instead of widened during inspiration. On subsequent laryngoscopic examination the abductors of the cords were found to be partly paralyzed.

December 23.—On examining the fauces, some very suspicious whitish mucous-looking substance was seen welling up from the pharynx during coughing, and on sponging out the fauces and top of the pharynx some well-formed membrane came away. She was then removed to the fever ward, and the throat ordered to be painted with glycerine of carbolic acid and of boracic acid alternately, several times during the day, and a little strychnia added to the quinine and iron mixture. Pulse, 150, very feeble and compressible; respirations, 24; She

lies in an apathetic state, taking scarcely any notice of what is going on around her. There is slight ptosis on both sides. The urine contained a little albumen.

December 25.—Pulse, 164, extremely feeble and “thready;” respirations, 48; temperature, 99° F. Ordered *Tr. digitalis*, \mathfrak{m} v., t. d. s., in addition to quinine and iron. Patient not allowed to be moved from the recumbent posture. There is complete aphonia, also paralysis of motion and anesthesia of the soft palate. No membrane to be seen in the throat. The vulvitis is slowly improving. She occasionally has “choking fits” when taking food, especially liquids. Bowels still loose, but less offensive. To be galvanized every other day.

December 28.—Vulvitis greatly improved; general condition unaltered.

January 2.—There is marked improvement in the general condition of the patient. Aphonia diminished. Pulse, 100; tension better marked. Does not pass urine and feces involuntarily as hitherto. Takes food well.

January 5.—Vulvitis almost disappeared. Paresis of extremities less marked.

January 12.—She can now sit up unsupported; can flex and extend legs with a fair amount of power. Formerly she complained of pain when they were moved or compressed with the hand, and there was a certain amount of anesthesia. The latter is rapidly disappearing, and she can readily distinguish between the head and point of a pin, which she was unable to do previously. She can now speak audibly, but the voice still has a somewhat nasal twang. Pulse, 80: good tension.

January 12.—Patient is just able to stand unsupported, but cannot walk. Her head no longer falls forward. She is rather unsteady in her movements.

January 31.—Owing to an outbreak of chicken-pox in the hospital, patient was sent home. She was then able to walk fairly well, with a little support; her voice had nearly regained its usual tone; and all local signs of diphtheritic inflammation entirely subsided. She attended as an out-patient for some time, and ultimately made a perfect recovery.

CASE III. *Diphtheritic Vulvitis, with Pharyngeal Diphtheria.*—Eliz. Smith, æt. 5, was brought to the out-patient room with severe vulvitis; its diphtheritic character was not at first suspected. The child was much prostrated, with dry and brown tongue, feeble and rapid pulse, and marked anemia. Two days after admission into hospital a well-marked diphtheritic patch appeared on the left tonsil, and albumen appeared in the urine: On making careful inquiries, the following interesting points were elicited:—Shortly before the patient was attacked with inflammation of the vulva she had been staying with a neighbor, two of whose little girls had suffered from a similar affection (she had slept in the same bed with one of them). Both of these children had been under my care in the out-patient room for vulvitis; but although the cases were somewhat severe, and obstinate in responding to treatment, I did not at the time suspect their diphtheritic nature. Both suffered from adynamic symptoms and anemia, but ultimately made a good, though somewhat protracted recovery. Although there was considerable muscular prostration, I do not find any mention in my notes of any marked paralysis. At this time there was a good deal of diphtheria about, and cases were frequently discovered among the out-patients.

The patient was removed to the fever ward, and treated much in the same manner as Case I. She remained in hospital ten days. At the end of this period she had quite recovered from the pharyngeal affection (which, however, had never been severe), and the vulvitis, though not absolutely well, had greatly improved. She was removed at her parents' request, but continued to attend as an out-patient. About a fortnight after leaving hospital she began to show symptoms of paralysis. These appeared first in the palate and pharynx, being indicated by regurgitation of the food through the nose, and with some difficulty in swallowing. She was treated with iron, quinine, and strychnia, milk, strong beef tea, and port wine, and ultimately made a complete recovery.

About the same time a case of phimosis, which had been

operated upon in the out-patient room by one of my colleagues, was admitted into one of my beds, with an unhealthy looking prepuce, the wound never having healed since the operation. The boy appeared weak and anemic, and his vitality much depressed. Although he was actively treated, he continued to grow worse, and ultimately died from asthenia, probably due to cardiac failure. I secured a piece of the prepuce for microscopical examination; there had been no attempt at cicatrisation, the surface of the wound was coated with an unhealthy looking grayish-white exudation, and there was a considerable amount of "brawny odema" of the subcutaneous tissue of the parts. I found the surface of the wound and subjacent tissues infiltrated with minute micrococci (stained by Gram's method), which had all the characters of those found in false membranes in the pharynx, etc., first described by Buhl, and I found the same organisms in the exudation in the ulcerated surfaces on the vulva, in the cases previously described.

Remarks.—Whether these micrococci constitute the *fons et origo* of diphtheria is still a disputed question. Recent investigations tend to prove the view that diphtheria is a specific disease, and caused only by specific organisms. Oertel, who has investigated this subject experimentally, has succeeded in passing the infection from one animal to another, choosing sometimes the trachea, sometimes the muscles of the neck or chest, as the seat of the induced disease; and after six transmissions he obtained a product capable of giving rise to the formation of a false membrane in the air-passages of the last animal experimented on. This authority holds that the only true distinction between croup (membranous) and diphtheria lies in the presence of micrococci in large numbers in the latter disease; on the other hand, some observers have failed to discover these organisms in diphtheritic membranes *below* the glottis, and think that they probably indicate only that the false membrane is undergoing decomposition. One very important question which has yet to be definitely settled in regard to

the pathology of the disease, viz., whether it is from the first constitutional, or whether Oertel is right in maintaining that it is originally local, and infects the system secondarily. Although it appears from experimental evidence that diphtheria always appears at the site of inoculation (Oertel), yet there can, I think, be no doubt that the disease has a special proclivity to attack the fauces; and that, even when the affection has commenced elsewhere, the throat suffers secondarily (*vide* Cases II. and III.), and apart from any direct extension of the morbid process. Until quite recently, it was almost universally supposed that there was a marked difference histologically between the false membranes of croup and diphtheria. According to Virchow, in croupous inflammation the exudation constituting the false membrane lay free upon the surface of the mucous membrane, while in diphtheria it was situated *within* the superficial layer of the mucous membrane, which generally underwent sloughing in consequence. It is now known, however, that this distinction no longer possesses the same importance, for it has been satisfactorily established by competent observers that the character of the diphtheritic membrane varies greatly according to its situation. Rhindfleisch has shown that on the palate and tonsils they consist not of fibrine, but entirely of cells, which have undergone a peculiar glassy change in their protoplasm ("coagulative necrosis" of Zeigler), and have become fused together; the false membranes are therefore firmly adherent. In the air-passages, on the other hand, the membranes possess a beautifully laminated structure, consisting of alternate layers of cells and fibrine; and as the mucous membrane of the air-passages possess a smooth basement membrane (which is wanting in the fauces), it is suggested that this prevents adhesion. As Hilton Fagge has observed, there is a variety of diphtheria in which the tonsils and uvula are simply reddened and effected with a catarrhal inflammation, a "*diphtheria sine diphtheriâ*" which occasionally occurs in members of the same family simultaneously with the

more severe membranous forms. In a case of diphtheria, in which death occurred from a complication occasionally met with, viz., suppression of urine, I had the opportunity of making a post-mortem examination, with the result of being able to confirm the above observations of Rhindfleisch. There were *firmly adherent* false membranes on both tonsils and edge of the soft palate. There was also a complete membrane lining the larynx, and extending a short distance into the upper portion of the trachea; and although it was firmly attached to the epiglottis and cords, below the latter it was very loosely adherent, and gradually became thinner and shreddy, being finally replaced by whitish mucous secretion. I have never seen the false membrane firmly adherent to the mucous membrane of the trachea or bronchi, either in membranous croup or diphtheria, which I regard as distinct affections. I obtained extremely good microscopical sections of tonsils, larynx and trachea; in the two former situations the false membrane consisted entirely of epithelial cells, which had undergone the peculiar "glassy" transformation already described; in the latter it was composed of alternate layers of fibrine and cells. Large numbers of micrococci existed, both in the false membrane and the mucous membrane beneath, which also contained numerous nuclei.

In the limited time and space at my disposal, it is impossible to discuss fully many important questions relating to the etiology and pathology of diphtheria, and its relations with other infective diseases. If the record of the above cases tends to throw any light on these points, however insignificantly, my purpose will have been achieved.—*Liverpool Medico-Chirurgical Journ.*

ON INFANT FEEDING.

BY WILLIAM BERRY, M.R.C.S., ENG., L.R.C.P. AND S. ED.,

Hon. Medical Officer, Royal Albert Edward Infirmary, Wigan.

(Abstract of a Paper read before Wigan Medical Society, June 17, 1886.)

GENTLEMEN:—In a town like ours, where many mothers resume their occupations almost immediately after the birth of their young, artificial or hand-feeding is very prevalent, and we are enabled, in the course of our professional work, to observe a large number of infants brought up in this way.

Before discussing the food and its preparation, let me observe that there is a difference of opinion among medical men as to the *mode* of feeding. I have a very strong opinion that spoon-feeding is much better than the bottle. No doubt sucking is the natural method of obtaining food for the young of all mammalia, but I think you will admit that they do not obtain their food by sucking it through a long tube, which is often choked up with filth in the shape of curds and sour milk.

Dr. Braidwood, however, holds a contrary opinion and recommends the bottle, and in his excellent little work on the *Domestic Management of Children*, gives it as his opinion that the *feeding-bottle* is preferable to spoon-feeding. On the other hand, M. Tarnier prefers cup or spoon-feeding, for we find that “at a recent meeting of the Paris Academy of Medicine, M. Tarnier read a paper on this subject (infant feeding). He began by stating that he much preferred cup or spoon-feeding to a nipple bottle, when the child cannot be fed by the mother’s milk. Although condensed milk may be wholesome for adults, M. Tarnier declares that it is quite useless for young children; and he considers that nothing can be compared with the mother’s milk, which is well known

to be the first food for infants. Artificial feeding has been tried in Paris with very disastrous results, as may be seen by the following statistics, drawn up by M. Bertillon:—In 1881, 60,856 children were born in Paris, of which 14,571 were sent away to be nursed, while 46,285 remained in the city. Of the latter number, 10,180 died, being a mortality of 22 per cent., while 5,202 of the former (nearly one-half) died of athrepsy, that is to say, bad feeding. Of these 5,262 infants, 3,057 were fed with a nipple bottle. M. Tarnier then showed:—(1) That the lives of young children cannot be safe unless they are fed on mother's milk; (2) if the mother's milk is insufficient, it should be *mixed* with the other; (3) wet nursing, which is favorable for a child thus nourished, is equally dangerous for the child of that nurse; (4) artificial nourishment is very much inferior to mother's milk, no matter how it is prepared, or what kind of milk is used. It is therefore better not to use it unless absolutely necessary."¹

In spoon-feeding it is necessary at the commencement to use the same kind of food that is put into the bottle. The thrusting down a child's throat bread-sop, oatmeal gruel, or bread and milk, is not what I mean when I speak of spoon-feeding. When spoon-feeding is adopted it should be administered slowly and regularly, and the child gradually got accustomed to it.

If bottle feeding is preferred, let me recommend to you the old-fashioned, boat-shaped bottle, which has no equal; it is readily and easily cleaned, and is not burdened with a long india-rubber tube, which can never be thoroughly freed from curds, and it approaches an artificial breast much more nearly than those we commonly see in use.

In bringing up infants deprived of their natural food, our object should be to imitate the natural food as nearly as possible, and also the same regularity in administering it. It is very objectionable to place a baby in a cot or cradle with a teat in its mouth to suck away when it feels inclined. A baby should always be taken up to have its

¹ *Vide Medical Press and Circular*, vol. ii. for 1882, pp. 336 and 337.

meals, just the same as would be done if it were suckled at the breast. Fresh milk should be put in the bottle each time the child has to be fed.

For *bottle-feeding*, therefore, it is necessary that there should be (1) a thoroughly clean and sweet bottle; (2) food of a proper temperature; (3) a sufficient quantity of food for one meal; and (4) food of a proper quality.

Now, gentlemen, I will ask you what should be *the food for the bottle?* My reply is, that for the first six months of a child's life its food should imitate its natural sustenance as nearly as possible, and we should use fluid food. I am in the habit, therefore, of recommending cow's milk, mixed with water to dilute it, and having this sterilized by boiling. Farinaceous foods should be carefully avoided during the first *six* months of infantile life.

In selecting the kind of food by which we mean to imitate nature, it is well to remember that the milk of animals differs from human milk in some important particulars, especially in regard to the amount of solid constituents and extractive matters. We have to carefully observe the amount of solids, and reduce them if necessary, so as to make the milk more digestible; and yet we must take care that it is sufficiently nourishing for the child.

The following table shows the approximate quantities:

	Water.	Butter.	Caseine.	Sugar and Extractives.	Fixed Salts.
Human, .	890	25	35	42	2
Cow, . .	860	38	68	30	6
Goat, . .	868	33	40	53	6
Ass, . . .	907	12	16	62	3
Mare, . .	888	8	16	83	5

It will be seen from this table that the milk of the ass and the mare approximate and resemble human milk, but the sugar and extractives, and also the fixed salts, are in excess.

In a lecture on Infant Foods, by Professor Albert R. Leeds, we find the following observation: "This is granting that woman's milk is the best infant's food; in what manner should the nature and proportions of the components be determined of any substitute we may be necessitated to employ? Certainly only by knowing, in the first place, the average composition of human milk."

Dr. Leeds did not agree with the previous analyses that had been made, and therefore set to work to collect samples and analyze them for himself. The samples were, he says, "taken from healthy women, mostly young and primipara." The samples usually amounted to two ounces, and were the entire contents of the gland, and taken in most instances two hours after the time of last nursing. He gives the following results:

Analyses of Forty-three Samples of Women's Milk—Reaction uniformly Alkaline.

	Average.	Minimum.	Maximum.
Specific gravity,	1.031	1.030	1.035
Water,	86.766	83.34	89.09
Total solids,	13.234	10.91	16.66
Total solids, not fat, . .	9.221	6.57	12.09
Fat,	4.013	2.11	6.89
Milk-sugar,	6.997	5.40	7.92
Albuminoids,	2.058	0.85	4.86
Ash,	0.21	0.13	0.35

The reactions were alkaline with one exception, and this was neutral; the alkalinity remained for twenty-four hours.

He remarks, and you will be able to observe from this table, that "the most striking feature in these analyses is the great range of variation in the amounts of certain constituents, more especially in the albuminoids, the maximum, 4.86 per cent., being nearly six times the minimum, which is only 0.85 per cent. The next most variable constituent is the fat, the maximum being more than three times the minimum; then come the saline mat-

ters, nearly three; then last of all the milk-sugar, which differs but little from the mean (6.997) in most samples. In other words, the most striking peculiarity in woman's milk is not the constancy, but the great variability in its composition."

Professor Leeds gives further an analysis of samples of unadulterated cow's milk, such as is sold by farmers to the citizens of New York and Philadelphia. He gives in a tabular form the following:

Analysis of Eleven Samples of Whole Market Milk.

Water,	87.7	per cent.
Total solids,	12.3	"
Total solids, not fat,	8.48	"
Fat,	3.75	"
Milk-sugar,	4.42	"
Albuminoids,	3.42	"
Ash,	0.64	"

For comparison Professor Leeds gives the tables of Professor König as follows:

	WOMAN'S MILK.			COW'S MILK.		
	Mean.	Min.	Max.	Mean.	Min.	Max.
Water,	87.09	83.69	90.90	87.41	80.32	95.30
Total solids,	12.91	9.10	16.31	12.59	8.50	19.68
Fat,	3.90	1.71	7.60	3.66	1.15	7.09
Milk-sugar,	6.04	4.11	7.80	4.92	3.20	5.67
Caseine,	0.63	0.18	1.90	3.01	1.17	7.40
Albumen,	1.31	0.39	2.35	0.75	0.21	5.04
Albuminoids,	1.94	0.57	4.25	3.76	1.38	12.44
Ash,	0.49	0.14	?	0.70	0.50	0.87

When we compare woman's milk with cow's milk we find the non-coagulable portion exceeds the coagulable portion in woman's, whilst in cow's the total albuminoids, which is coagulable by acids, is far greater than the non-coagulable portion. Its milk-sugar also largely exceeds the cow's, and the fats also are slightly more, whilst the albuminoids in woman's milk fall far below the albuminoids of cow's milk.

Again, Professor Leeds observes: "It would seem that the best solution of the problem of artificial infant feeding is to be found in the substitution of cow's for human milk. But, inasmuch as the secretion of the herbivora is radically, and in all particulars, different from that of the omnivora, cow's milk must be profoundly altered, so as to assimilate in the ratio and nature of its constituents" human milk."

The method usually employed to render cow's milk similar to human milk is the addition of some diluent. The mere addition of water will reduce the percentage of albuminoids to the same percentage which we find in human milk, but the simple addition of water to milk will not diminish the size or compact character of the clot of cow's milk. Various attenuants may be used for this purpose,—starch, arrowroot, gum, or other bland nutriment, will do this partially.

Cow's milk may be peptonized, and thus rendered fit for the stomach of the infant, slight peptonization is usually sufficient. Peptonization is the conversion of a proteid into a peptone, and we have this exemplified when caseine is digested; that is, we have the complex particles broken up into smaller ones, and rendered more easy of assimilation. Peptonized milk cannot be curdled, and still it presents all the nutrient ingredients—dissolved caseine, sugar of milk and oil globules.

With reference to cow's milk, Dr. Routh, in his valuable work on *Infant Feeding*, says;—"Now, it is clear, comparing this with human milk, that (1) the quantity of water is less in that of the cow; (2) the solid matters are in greater quantity; (3) the sugar is less in amount; (4) there is more caseine; (5) and more butter; (6) the salts are also in excess."¹

Dr. Routh goes on to show that simple dilution will not suffice, because, if it diminish the relative amount of caseine and butter, it reduces unduly the amount of sugar.

¹ *Vide* page 297.

Milk for infants' food should always be fresh, for, if milk be allowed to stand for some time, its relative proportions will alter. Milk is also injuriously affected for nursing purposes when it is carried for a great distance by rail, and its composition varies much according to the pasture on which the cows are fed.

It is stated that in the lowlands the milk of cows is better adapted for cheese-making, as it contains a greater proportion of caseine; again, in mountainous districts it is better for making butter, as it contains more fats.

Now, I think we shall all be agreed on one point, namely, that, when it is desirable from any cause that a child should be brought up by *hand-feeding* instead of by its mother, its food should be as nearly as possible to that of mother's milk. Now, to get it like this should be our object, but it is in the method of attaining this that most of us will differ. I have been in the habit for some time of ordering cow's milk largely diluted and boiled, and the thin film removed from the top after it has cooled somewhat; and I came to adopt this method of procedure, not from chemical examination, but by observing what proportions of milk and water suited the delicate digestive powers of the infant; and if I have erred in my observations, it has been owing to the majority of my cases having stomachs of unusually weak digestive powers.

I usually recommend the milk to be obtained from one cow, and from birth up to the age of *three* months recommend the following proportions:—

Cow's milk, 1 part.

Water, 3 parts.

Mix and boil, then pour into a clean jug, add one teaspoonful of sugar of milk or two pieces of loaf sugar to the pint, and a little portion of salt. When it has cooled, the film to be taken from the top, and the bottle nearly filled. At *three months* old the proportions should be *one* of milk to *two* of water, and this gradually increased till, the child at *six months*, the proportion of milk and water

are equal. Now comes the question: "Is the proportion of milk to water too small?" My answer would be to those who differ from me, that a child will thrive on this diet, and it will rarely disagree if given by a spoon or by the bottle, providing the bottle is cleansed each time before use.

Some medical men advocate milk and water (pure and simple), but this is not like human milk, therefore I prefer to have this boiled, so as to remove the coagulated portion, and thus, to use a term of Professor Gamgee, to sterilize it, and then add sugar of milk.

My excellent friend, Mr. Brady, in the *British Medical Journal*, vol. xi. for 1884, p. 643, rather takes me to task for recommending the milk of one cow, and states that it has been proved "more than once that the milk taken from a number of cows for any length of time, say six months, is of more uniform quality than that procured from one.

Well, I have not seen the proof of it, yet I am willing to admit that there is some reason in this; at the same time, I do not think Mr. Brady would recommend the milk of a number of mothers to be mixed, or recommend a child to be suckled by a number of wet-nurses.

The one cow's milk is liable to variation from the time of calving up to the period of again becoming dry, but the same would apply to a number of cows, and so the mixture would vary also, and the same applies to mother's milk. The composition of human milk varies from the period of parturition up to the time of weaning; it also varies according to the food and drink taken, and so also does cow's milk. It is therefore for the following reasons that I recommend the milk of one cow:—(1) Usually the best cow in the dairy is selected; (2) More attention is paid to her feeding; and (3) the milk is less likely to be contaminated by the addition of impure water. I am not singular in advocating this plan, for I believe it is pretty generally adopted where it is possible to do so. Of course the greatest attention should be paid to the milk being *fresh*, and this, no doubt, is more important than having

it from one cow. Dr. Armand Semple, in his *Mother's Guide*, p. 10, says:—"The next important step is to select the milk. The principal qualification—I was about to say the only one of importance—is that it should be fresh."

Dr. Semple further shows that, although fresh milk can be got to our dairies readily by rail, the worst thing that can happen to milk is the churning from jolting in its transit, and thus it becomes acid, and we get a train of injurious effects following its use. He recommends the milk to be tested with litmus paper before using it. He recommends also that the dairy should be visited and the hygienic surroundings of the cows inspected, and states that "some cows are noted for their milk agreeing with infants, and, should the farm from which your milk supply comes have such a one, try and secure that for your own use" (*op. cit.*, p. 13).

Mr. Brady in his communication further tells us that many mothers and nurses are in the habit of frequently over-feeding children, especially when the bottle is used; so that, if you do not limit the quantity, the result is that every time the child cries the bottle is stuffed into its mouth. He then alleges that if this weak compound (one part milk and three parts water) be used, and the stomach overloaded, no wonder the child vomits green acid water and small curd. Now, the diluted milk which I have been in the habit of recommending, is for the purpose of preventing both over-loading and over-feeding; we wish to give the child something which will be readily digested. Over-loading is prevented by what Mr. Brady appears to be in the habit of recommending, for he goes on to say that—"I have always been in the habit—and I never yet had a case that gave me trouble when my advice was adhered to—of recommending that an infant's food should consist of equal parts of milk and water for the first three months after birth, two ounces to be given in the course of two hours, any portion unused at the end of that time thrown away and a fresh supply made, but in no case is more than the measured quantity to be given. After three months the strength may be gradu-

ally increased till it is three parts of milk at six months, and, as the child grows and becomes able to assimilate more food, the quantity may be increased to three or four ounces in two hours; but in no case is the double quantity or any portion of it to be given during the time; if the child cry, he wants nursing, not feeding. I know of a number of children brought up in this way who, for the first twelve months of their lives, have scarcely required a teaspoonful of medicine.”¹

Now this is sensible advice, and I have no doubt it will act especially if the milk and water be boiled, and the thin film removed and a little sugar added.

As I have previously mentioned, I advocated diluted milk (1 to 3) boiled, and sugar or sugar of milk added, and the coagulated caseine removed. I am sure that children do retain this, and, what is more, thrive on it.

The bottle should always be cleaned before the next meal is put into it. I do not limit the meal to two ounces, but admit if I did so the proportions of water to milk would be too great. I hope you will pardon me for quoting so freely from the writings of others, but I am anxious to prove to you that attention to the preparation of the food is the secret of the success which should attend hand-feeding. Dr. Armand Semple says:—“If a child is to be entirely bottle-fed it can be fed at first every *two hours*, and then it is well to increase the amount of water to a little more than one-half, gradually increasing the quantity of the milk, as the digestion improves and the child gets stronger.”²

It is generally admitted that the caseine of mother’s milk forms a soluble compound and not a hard curd, unless there is excessive acidity of the stomach, and it is owing to the small proportion of caseine which ass’s milk contains that renders it more easily assimilated by the delicate stomach of the child.

Dr. Benson Baker says:—“Milk with proportionately less nutritive matter is better adapted to sustain the child

¹ *British Medical Journal*, vol. ii., 1884, p. 643.

² *Mother’s Guide*, p. 15.

in vigorous health than when given in a richer and more concentrated form. It is not uncommon to find children that do not progress on milk and water. It is then customary to lessen the amount of water and increase the milk, from the idea that the food is too poor. As a rule, no proceeding could be more disastrous to the child. If the milk had been further diluted, the cause of the complaint, viz., the inability to digest the concentrated solids, would have been removed, and the child would consequently have been restored. The reason why human milk agrees so much better than other milk, is because it is so much diluted and the cheesy substance more soluble. It is on this account that ass's milk succeeds so well. For all ordinary feeding cow's milk answers very well, provided that care be taken to make it as nearly like human milk as possible. Human milk contains little more than half the quantity of cheesy matter that is found in cow's milk, hence the necessity of freely diluting it with water. Cow's milk should be mixed with half its bulk of pure, tepid water. The following proportions of added ingredients approximate the proportions and properties of human milk, and generally answer well (sometimes a little more water is required during the first few weeks of infant life):—Cow's milk, half a pint; water, the same quantity; a small teaspoonful, or 60 grains, of sugar of milk, and 2 grains of phosphate of lime; and the addition of two teaspoonfuls of cream if the quality of milk be good; But when the milk is poor or skimmed, or such as is known as London milk, then the quantity of cream must be at least doubled. *Cow's milk thus modified is rendered very nearly like human milk, both in the proportion of its constituents and its solubility.*"

Mr. Edmund Owen, F.R.C.S., England, and one of the surgeons to St. Mary's Hospital and the Children's Hospital, Great Ormond Street, states, in a lecture, delivered at the International Health Exhibition, the abstract of which will be found in the *Lancet* for 1884, vol. ii., p. 270:—"The lecturer said that he was apprehensive lest preserved milk should entirely usurp the place of fresh

milk in the nursery. At present it was far too widely employed, and he entirely failed to see how it could form a more wholesome diet for infants—as some maintained it did—than the fresh article. He could no more believe this than that the adult would thrive better on tinned American meat than on fresh sirloin. For babies, cow's milk, which should be always fresh, should be mixed with an equal or *even greater bulk* of warm water, in which a lump of white sugar and a pinch of salt had been dissolved; the fresh milk was an excellent antiscorbutic, and was therefore always needed. Often, when he had been assured that cow's milk could not be retained by the infant stomach, he had been able to demonstrate to the contrary by mixing even as much as double the quantity of water with it. In summer lime-water might be added to the mixture."

Besides the methods of preparing milk which I have just mentioned, there are various other modes of preparing artificial foods—I mean milk foods. Dr. Ashby, of Manchester, speaks highly of the "cream mixture," originally suggested by Biedert, and which consists of varying proportions of cream, water, milk, and sugar, the amount of milk varying according to the digestive powers of the infant. For a newly-born child, or one suffering from gastro-intestinal catarrh, no milk is added, the cream supplying sufficient nutriment.¹

Dr. Meigs's food for infants is also highly spoken of, but the trouble in preparing the same is a great drawback. I will give you the method in full:—"Dr. Arthur F. Meigs has devised a new food, with which he states he has attained very good success in as many cases as he has had the opportunity of trying it. He says that it contains the same elements as are found in human milk, and in more nearly the same proportions than any other food heretofore recommended. It consists of two parts of cream, one of milk, two of lime-water, and three parts of a solution of sugar of milk of the strength of $17\frac{3}{4}$ drachms to the pint of water. The milk to be used should be good

¹ *Medical Chronicle* for May, p. 112.

ordinary cow's milk, and the cream such as is usually sold in cities; and not too rich, containing about 16 or 17 per cent. of fat. The quantity of this food taken by a new-born infant should be two or three fluid ounces every two hours. The best way to prepare and use this food is to get five or six packages of milk-sugar, containing $17\frac{3}{4}$ drachms each; the contents of one of these to be dissolved in a pint of water, and each time the child is to be fed let there be mixed together, and then warmed, three tablespoonfuls of the sugar solution, two of lime-water, one of cream, and one of milk. This makes about a gill, and as much of this as the child does not take should be thrown out, and a fresh mixture made for the next feeding.

Dr. Walker, of Spondon, Derby, recommends in the *Lancet*, vol. ii., 1884, p. 320, Dr. Frankland's method of preparing artificial human milk. "The preparation of this artificial milk is accomplished in about ten minutes, and it will be gladly undertaken by even 'the lazy nurse,' for the sake of the better health and rest acquired by the baby thus nourished. To prepare it, allow half a pint of new milk to stand for about twelve hours, remove the cream, and add it to one pint of new milk as fresh as possible. Into the half pint of skim milk put a piece of rennet about an inch square, to be obtained of the butcher. Set the vessel in warm water till the milk is fully curdled, which requires from five to fifteen minutes, the rennet being removed as soon as curdling commences, and put into an egg-cup for future use, as it can be employed daily for a month or two. Break up the curd thoroughly, and separate the whole of the whey, which should be rapidly heated to boiling, when a little more caseine separates, and may be removed by straining; 165 grains (about two teaspoonfuls) of powdered sugar to be dissolved in this hot whey, and the sweetened fluid added to the pint of new milk (and cream). It is then ready for use."

In the *Medical Chronicle* of June, p. 226, I find the following note:—"The digestion of milk,' *Therapeutic Gazette*, March, 1886." Dr. M. Reichmann draws the following conclusions from a number of elaborate experi-

ments as to the digestibility of milk in the human stomach¹:—(1) Boiled milk leaves the healthy stomach more rapidly than an equal quantity of unboiled milk; (2) the digestion of boiled milk is more rapidly accomplished than that of unboiled milk; (3) the coagulation of unboiled milk in the stomach is complete in five minutes; (4) this coagulation is not caused by the acid of the gastric juice, but by the influence of a special ferment (milk-curdling ferment); (5) the activity of the gastric juice is at first due almost solely to lactic acid, and, later in the process of digestion, to the presence of hydrochloric acid; (6) hydrochloric acid first appears in perceptible amount forty-five minutes after the injection of half a pint of milk; (7) for the first hour and a quarter after the injection of milk, the acidity gradually increases and then decreases until the milk has entirely left the stomach; (8) the curds of caseine in digestion of boiled milk are much softer than in the digestion of uncooked milk.”

It is now time I brought my remarks to a close. I have purposely avoided mentioning any of the various patented preparations or foods, which are too numerous to mention, and believing as I do, that cow's milk makes the best artificial food for infants deprived of their natural sustenance.—*Liverpool Med. Chirurg. Jour.*.

¹ *Deutsche Med. Zeitung*, No. 82, 1885.

THE ANTISEPTIC TREATMENT OF SUMMER
DIARRHEA.¹

BY L. EMMETT HOLT, A.M., M.D.,

Attending Physician to the New York Infant Asylum.

I have chosen the title summer diarrhea for this paper as it indicates with sufficient exactness the clinical symptoms that we all understand, while not committing us to any one of the theories advanced regarding their pathology. As my purpose is to consider a method of treatment, I shall only incidentally discuss the subjects of etiology and pathology, as these bear directly upon the therapeutics of the disease.

Lest any one may misunderstand me, I wish to state at the outset, and with emphasis, that I do not ignore nor undervalue other methods of treatment than the use of drugs. The question that I propose is, what is the best treatment for that vast number that crowd our dispensaries, and other institutions, summer after summer, for whom no change of air is possible and only limited and imperfect dietetic regulations are practicable?

One conclusion has been long forcing itself upon my mind with increasing strength every summer—viz., that, excepting the comparatively rare cases of pure cholera infantum, nearly all the diarrheas and intestinal catarrhs of young children are essentially dyspeptic in their origin.

I have been pleased, within the last few days, to find virtually the same statement from the pen of so high an authority as Hensch, of Berlin. All the well-recognized factors in the causation of summer diarrhea—excessive heat, artificial or improper feeding, and bad hygienic surroundings—unite in this, that they prevent the food in the child's stomach from being digested, in consequence

¹ Read before the New York Academy of Medicine, January 6, 1887.

of which it undergoes fermentative or putrefactive changes. It is a combination of the three factors rather than any one alone, which produces the resulting dyspepsia.

If it were heat alone, we should expect the greatest frequency of the disease to be at the most tender age—under six months. Such is not the case. Of 431 patients of my own, only 12.8 per cent. were under six months, while 59.5 per cent. of the cases occurred between the ages of six months and two years. The explanation is obvious. Under six months the great majority of the children of the poorer classes receive breast-milk either exclusively or principally, while from that time on they are accustomed to be fed from the table, or on articles totally unfitted for infantile digestion. It is a striking fact that Hope,¹ of Liverpool, brings out, in his statistics of 591 fatal cases of summer diarrhea in children under two years of age, that only twenty-eight had the breast exclusively; while Ballard² states, that of 341 fatal cases occurring in Leicester, only 2 per cent. of the children had had no food but the breast. These statistics show that we are to attribute to the feeding quite as much as to the heat, if not the occurrence of the diarrhea, at least its fatality.

Heat is a causative factor in many ways. It impairs the child's power of digestion by depression of his nervous energy. It causes thirst from free perspiration and leads the child to take more food than the stomach can take care of, even though it be pure breast-milk. It increases all decomposition in the streets, in the sewers, and in filthy tenements, and these children breathe an atmosphere charged with the products and germs of decomposition. But more important than all else, perhaps, are the changes it causes in the food itself before it is taken into the body. Most of the articles of food are of such a nature that these changes readily take place, even in a few hours, in August weather.

An instance of how quickly diarrhea is caused by

¹ *Liverpool Medico-Chirurgical Journal*, July, 1885.

² *Brit. Med. Journal*, 1883, ii., 363.

tainted milk came under personal observation not long since, where every one of twenty-three healthy children occupying a ward was taken in a single day with diarrhea after eating milk which subsequent examination showed to be unfit for consumption.

When we consider the manner in which food is prepared for these children in tenement houses, the want of cleanliness in utensils and in hands, how it is often left standing for hours in open vessels at the temperature of the room, the wonder is only that so few suffer from diarrheal diseases during the hot term.

This brings us to the subject of the poisons produced from food, or ptomaines, and their effects. The investigations of Brieger and others upon this subject have let in a flood of light, it seems to me, upon the pathology of some of these cases of diarrhea.

In the investigation of the well-known Michigan cases of ice-cream poisoning, recently, Professor Vaughan has reached the conclusion that the symptoms, prominent among which were the vomiting and purging, were due to an alkaloid developed from the milk, to which he has given the name tyrotoxin.

Brunton states¹ that most of the alkaloids which have been obtained from the decomposition of albumin tend to produce diarrhea.

This knowledge of poisons developed from food is of only recent date—too recent for us yet to say to what degree we may be compelled to reconstruct our pathology of many diseases connected with the organs of digestion. But enough has been already established to lead us to hope that along this line of investigation we may find a solution to many hitherto insoluble problems.

A strong popular prejudice has long existed that there is great danger of the supervention of cerebral symptoms if diarrheal discharges are abruptly checked. It is also well known that in severe and protracted cases a cessation of the diarrhea often occurs for a few days before death, coincident with the development of symptoms commonly

¹ *Disorders of Digestion*, chapter "Food and Poisons," p. 291.

denominated hydrecephaloid. And now Bouchard tells us, as the result of his investigations upon ptomaines produced within the body, that "the poisonous activity of human feces is very great even when they are quite healthy. A substance obtained from them by dialysis caused violent convulsions in rabbits. Enough alkaloids are produced in the intestines of a healthy man in twenty-four hours to kill him, provided they were all absorbed and excretion stopped. There seems to be little doubt that the amount of ptomaines produced in disease is greater than in health."¹

Aside from the toxic effects which, it seems very probable, are produced by food-poisons, we have the local effects of undigested food in the stomach and intestines, and these it is which produce the catarrhal changes. The great proportion of these cases begin with vomiting and diarrhea, the vomiting ceasing usually after the first day or two. The first stools are those of a dyspeptic character, and it is generally not until several days have elapsed that we find proof in the passages of catarrhal inflammation in the bowel.

I need not cite statistics, as it is the all but universal testimony that inflammatory changes are mainly in the colon; it is uncommon to find any changes in the small intestine further than a swelling and redness of Pyer's patches, and slight congestion of the lower part of the ileum.

In the colon itself the most marked lesions are found in the cecum and sigmoid flexure, just where the irritating substances are longest detained in their movement onward. The colitis, then, I think, is to be looked upon in most cases at least, as secondary and consecutive, depending upon how long the morbid process has been suffered to go on before it is checked.

Regarding a special microbe as a cause of summer diarrhea, we lack as yet sufficient evidence of its existence. Immense numbers of bacteria of many varieties are found

¹ Brunton, *op. cit.*, p. 290.

in the discharges. Baginsky¹ asserts that often the small white lumps seen in the passages and called curds are made up of nothing but masses of bacteria. This same investigator has isolated one bacillus which, he thinks is peculiar to cholera infantum; but, as Clado and Damaschino have settled upon a different one, and as experiments with pure cultivations from neither have yet been made, we must consider the subject as still *sub judice*.

We are now prepared to consider the different indications for treatment. These may be grouped under four heads:

1. To clear out the bowels.
2. To stop decomposition.
3. To restore healthy action in the intestine.
4. To treat the consecutive lesions.

The bowels should be emptied as completely as possible, as the first step in the treatment, and for precisely the same reasons that the surgeon cleanses a wound thoroughly before applying his antiseptic dressing. It is a rule laid down in all text-books that if an antecedent constipation has existed, or if there is evidence that indigestible food has been swallowed, it is the proper thing to begin with a cathartic.

I wish to go a little further than this, and say that in all cases, whether such a history is obtained or not, it is a good rule to follow. If not decomposing and irritating food, we have almost always altered secretions undergoing the same putrefactive changes.

If the stomach is not very irritable, nothing, to my mind, compares in efficiency with castor-oil. If there is severe vomiting, a copious injection of pure water at a temperature of about 65° F. may be used. To be efficient, this must be large enough to reach the ileo-cecal valve. This, by experiment on the cadaver, I have found to be about one pint in a child six months, and about two pints in one two years old. It should, of course, be given slowly, with a fountain syringe, the abdomen meanwhile being gently manipulated.

I have had abundant proof, in the cases occurring among the children at the Infant Asylum, that a great many of the mild cases, if taken promptly at the start, can be cured by the castor-oil alone, provided suitable regulation of the diet after it can be enforced. In severer cases, and especially those in dispensary practice, it produces temporary improvement only. The value of oil in these cases is well understood by the laity—better, I sometimes think, than by many in the profession. I kept a record for a time, and found that about one-fourth of all the patients brought to the dispensary for treatment had been previously given the oil at home, usually at the outset. The almost invariable testimony was that on the day or two following decided improvement occurred; by the third day, however, they were usually as sick as ever.

There is obviously no need either of cathartics or of irrigation of the bowel in cases where, after two or three fecal or semi-fecal movements, the discharges consist of almost pure serum, large in amount, alkaline in reaction, and odorless.

To meet the second and third indications—*i. e.*, stop decomposition and restore a healthy action in the intestine—two things are requisite: the administration of an antiseptic, and attention to the diet.

The antiseptic must be given in small doses and frequently—in small doses lest the stomach reject it; and frequently, as it is a continuous effect that we desire. It must be of such a nature and in such a form as to be easily administered. A nauseous prescription, no matter how excellent its ingredients, should never be given, and need never be. I have seen many cases, where I am sure the medicine given was the chief factor in keeping up the gastric disturbance. It must be one, if possible, which has the effect of restoring the tone of the alimentary tract. After experimentation with various drugs, my own preference is in favor of the salicylate of sodium. The details will be given in a subsequent part of the paper.

If there is much vomiting, no food whatever should be given for from twelve to twenty-four hours. Thirst can

be satisfied by giving either carbonic-acid water or thin barley gruel, cold, and a teaspoonful at a time. If the child is at the breast, as soon as vomiting is controlled it can gradually be brought back to its accustomed diet, great care being used that too much food is not given.

In children under two years not fed at the breast, it is better to *withhold milk entirely*. This has been a subject of careful investigation during the past summer at the New York Infant Asylum, and both the resident physicians and myself have had this proved to our satisfaction by a large number of cases. Peptonized milk is very much less likely to disagree than either condensed milk or fresh cow's milk. But in many even this caused an aggravation in the intestinal symptoms, particularly in severe and protracted cases. Again and again have I seen relapses brought on when milk was added to the diet in cases where the stools had been practically normal for two or three days.

Our "no milk diet," as it came to be known, comprised the following articles: Wine whey, chicken and mutton broths, Mellin's food with barley gruel, expressed juice from rare beefsteak or roast beef, and in a few cases raw scraped beef. With this variety we usually had no difficulty in dispensing with milk.

The fourth indication, or the treatment of consecutive lesions is not so easily met. As hinted above, the essential changes are in the colon, and consist practically of little else than a follicular colitis.

When the condition of ulceration is reached, I believe the use of astringents by the mouth to be absolutely useless. Cases treated by such means I have nearly always found to run on until cool weather came. What, in fact, ought we to expect from fraction-of-a-grain doses of nitrate of silver or acetate of lead when we remember that their action is needed upon the last four feet of the bowel? Bismuth in large doses seems more plausible, but practically it has failed with me five times where it has succeeded once.

I have settled upon three things as valuable:

First, as careful attention to the diet as during the acute stages, and in recent cases. Deviation from dietetic rules has been the most frequent cause of relapses.

Secondly, the continuance of the use of the antiseptic as the only sure means of checking intestinal decomposition, and hence stopping the irritation.

Thirdly, the whole large intestine should be washed out once every day, either with pure water at a temperature of about 65° F., or with a weak antiseptic solution, or with an astringent solution. Of the former the best are probably benzoate and salicylate of sodium; of the latter, the nitrate of silver and tannic acid.

Before taking up the use of antiseptics historically, I wish to call attention to this fact: that, except opium, with regard to the value of which in summer diarrhea there has always been much controversy, almost all the drugs that have held their place for the last twenty-five or fifty years are now universally recognized as antiseptics, —some of them very powerful ones. Prominent among these I may mention bismuth, calomel, the mineral acids, especially sulphuric, the chloride and sulphate of iron, and the nitrate of silver. It seems to me altogether probable that the value of these drugs, for the value they certainly possess, depends not upon their astringent action as we have so long been taught, but upon their effect as antiseptics.

The earliest treatment of diarrheal diseases by pure antiseptics of which I have been able to find record was by Mayes¹ in 1846, the drug he used was *creasote*. He states that it should be preceded by a cathartic, since diarrheal diseases are oftenest caused by undigested food in the intestine in a state of decomposition. In his second publication² he confirms his earlier impressions.

In 1847 an article on the value of *creasote* was published by Beirão.³

In 1849, Spinks,⁴ after using *creasote* extensively, pub-

¹ "Southern Med. and Surg. Journal," 1846, ii, 583.

² *Ibid.*, 1847, iii., 151.

³ "Jour. Soc. de Sci. Med.," Lisbon, 1847.

⁴ "London Med. Gazette," 1849. 254.

lished some statistics of two hundred and twenty-four cases of simple diarrhea. Ninety-three were treated by opium, chalk, etc., in all of which the disease lasted several days, and was followed by flatulence. One hundred and thirty-one cases were treated by creasote alone, "in all of which the diarrhea immediately ceased." This drug he used in twelve cases of "rice-water purging," with equally good results.

In 1851, Kestevan,¹ influenced by the writer just mentioned, published his results of the use of creasote in over one hundred cases of diarrhea and dysentery; in no single case did improvement fail to occur. He thought it more efficient than any other drug in stopping the vomiting, purging, and pain.

Woodson² the next year still further confirmed Kestevan's experience, after the use of creasote in twenty cases in children and in adults. Its action was prompt and invariably successful. He places it far above opiates.

Further testimony to the value of creasote was borne by J. G. and W. F. Westmoreland, who had seen cases of malignant army dysentery cured³ by it in large doses, and others of a protracted character which had resisted for months all the ordinary methods used.

Davis,⁴ in 1872, spoke in high terms of the value of carbolic acid in diarrheal cases, but, with this exception, for the last twenty years the drug is scarcely mentioned in current literature, and then usually only as a means of controlling vomiting.

Oil of Naptha was used as early as 1849 by Lavisotte,⁵ whose published experience, although embracing reports of ten cases only, was still enough to show that some very obstinate cases of diarrhea, which had resisted for months the usual treatment of opium and astringents, could be cured by naptha alone in a few days.

Two years later, Mavel⁶ contributed to the same sub-

¹ *Ibid.*, 1851, 235.

² "*Western Jour. of Med. and Surg.*," Louisville, ix, 1852, p. 289.

³ "*Atlanta Med. and Surg. Jour.*," vii, 1866-'67, p. 249.

⁴ "*Boston Med. and Surg. Jour.*," Jan. 4, 1872.

⁵ "*Gazette des hopitaux*, 1849," i, p. 46.

⁶ *Ibid.*, 1851, i, 565.

ject reports of four chronic cases of diarrhea promptly relieved by naphtha.

Salicin was first recommended in diarrheal diseases, so far as I have been able to learn, by Mattison, in 1873.¹ He alleged for it, after considerable use, great superiority over opium and astringents in the treatment of cases of protracted diarrhea, both in children and in adults.

During the next three or four years numerous articles appeared in the Southern medical journals, by Tucker² Bishop,³ T. C. Smith,⁴ Hughson,⁵ Tidd,⁶ and others, confirming the statements made as to the great value of salicin. Many of the gentlemen referred to had used it extensively, but all were inclined to regard its mode of action as tonic or specific. In 1887 Mattison published⁷ a second article, collecting quite a large number of cases, the experience of all who had used salicin being that, especially in protracted cases, it was the most valuable drug we possessed.

I have found but scanty reference to this treatment since that date, except by S. W. Smith,⁸ in 1884, who states that, as early as 1858, the value of willow charcoal was made known to him by some sea-captain upon the Mediterranean, and that since that time he had regarded salicin as a "a sheet-anchor in diarrheal cases." He calls special attention to its antiseptic properties, which, he states, exceed those of carbolic acid.

Salicylic Acid and its Salts.—The acid was first applied to the treatment of intestinal diseases by Stephanides,⁹ who reported in 1875 two cases of obstinate dysentery promptly relieved by this drug. The acid was further employed in the same disease by Abelin in 1877.¹⁰

In 1879, Kilner¹⁰ published the results of some exten-

¹ "Southern Med. Record," 1873, p. 671.

² "Southern Med. Record," 1873, p. 590.

³ *Ibid.*, 1874, p. 585.

⁴ *Ibid.*, 1875, p. 328.

⁵ "Charleston Med. Jour.," ii, 1875, p. 297.

⁶ "Detroit Rev. of Med. and Pharmac.," xi, 1876, p. 7.

⁷ "Proceedings of the Med. Soc. of the Co. of Kings," i, 1877, p. 248.

⁸ "Brit. Med. Jour.," ii, 1884, p. 711.

⁹ "Wien. Med. Presse," xvi, 1875, p. 297.

¹⁰ "Allg. Med. Central-Zeitung," 1877, Nos. 37, 38.

¹¹ "St. Thomas's Hosp. Reports," ix, 1879, p. 21.

sive experiments with the salicylates of bismuth and calcium. He speaks of them in the highest terms in cases depending upon summer heat, also those in autumn from sudden changes in temperature, and in all cases where indigestion and disturbance of the stomach are present.

In 1880, Hutchins,¹ of Brooklyn, reported twenty-seven cases of severe serious diarrhea in young children. He was led to use the drug from reading the article just referred to, and abundantly confirmed the statements made regarding salicylate of calcium, which he had employed. He used the single drug only, and in every case its administration was almost immediately followed by a cessation of the serious discharges. Slight catarrhal diarrhea continued in some cases for a few days, but in none was there any recurrence of the watery stools. Segur, of Brooklyn, has used the salicylates in the treatment of the diarrhea of phthisis, and both he and Hutchins speak in very high terms of its value here. In a recent personal communication to me, Dr. Hutchins states that subsequent experience has not changed his opinion regarding the great value of the salicylates, particularly in diarrheas with serious discharges tending to cholera infantum.

In 1881, Calleja,² published an article on the value of salicylate of sodium in diarrheal diseases.

In 1885 Northridge³ published eight cases treated by the salicylate of calcium. This writer believes firmly that it is to its antiseptic properties that the success of the salicylic-acid treatment is due.

During the present year Shank⁴ has written upon the value of the salicylate of sodium in the treatment of diarrheal diseases in children, but he gives us no particulars regarding the cases in which it was used.

Braithwaite⁵ has spoken of the great value of the sali-

¹ "Proceedings of the Med. Soc. of the Co. of Kings," 1880, p. 223.

² "Rev. de med. y Cir.," Madrid, 1881, 97, p. 145.

³ "New York Med. Jour." Aug. 29, 1885.

⁴ "ARCHIVES OF PEDIATRICS," July, 1886.

⁵ "Brit. Med. Journal," July 17, 1886.

cylate of iron in many diarrheal affections, especially where the stools were offensive.

Naphthalin was introduced as an antiseptic in intestinal diseases by Rossbach¹ in 1884. The advantages stated for it were that it was a powerful antiseptic, that it was not toxic, and that, as it was insoluble both in alkalies and in acids, we could be sure of its local action. He found it of great value in old intestinal catarrhs of adults, and used it in twenty-four cases in children with the most gratifying results.

The same year Cognali² published six cases in which naphthalin was used with negative results; all were chronic, and all in adults.

In 1885, good results were published by Pauli³ and Pribram⁴ from the use of naphthalin in the diarrhea of children. Falkenberg⁵ used it in numerous cases of dysentery with uniformly good results. This writer quotes from Karelin, who stated that the naphthalin treatment had "done wonders" in dysentery in the army, and also from Kusmin, whose experience in the Foundling Asylum at Moscow confirmed the good reports already given.

During the present year naphthalin has been recommended by Bouchard⁶ in combination with iodoform and charcoal.

Bi-chloride of Mercury.—This has in several editions of Ringer's "Therapeutics" been recommended in dysentery. Communications regarding its use, both in diarrhea and dysentery, have been published by Ravenberg⁷ in 1878; Reed,⁸ in 1879; Shultz,⁹ in 1880; and Millard¹⁰ and Morton,¹¹ during the present year. With one excep-

¹ "Berlin. klin. Wochenschrift," Nos. 42 and 46, 1884.

² "Gazz. med. ital. Lombard," Milan, vi, 1884, p. 465.

³ "Berlin. klin. Wochenschrift," xxii, 1885, p. 153.

⁴ "Wien. med. Wochenschrift," xxxv, 1885, p. 242.

⁵ "London Med. Record," Dec., 1885, from "Voënno-Sanitaroë," 1885, No. 45.

⁶ "Revue de therapie," May 15, 1886.

⁷ "Med. Record," xiv, 1878, p. 4.

⁸ "Philadelphia Med. Times," 1879-'80, p. 207.

⁹ "Louisville Med. Herald," ii, 1880-'81, p. 341.

¹⁰ "Brit. Med. Journal," July 31, 1886.

¹¹ "Med. Record," Sept. 18, 1886.

tion, particulars regarding the kind and number of cases treated, and exact results, have been omitted.

Shultz states that he has treated one hundred and twelve cases of severe dysentery with this drug, with only one fatal result. He thinks it deserves the title almost of a specific in severe cases of dysentery. In mild cases, opium and calomel might succeed, but in severe ones seldom.

During the past year or two several other drugs have been proposed, following out the idea of antiseptic treatment. Resorcin has been advocated by Baginsky¹ and Fauldi,² chloride of potassium by Moncorvo, bisulphide of carbon by Dujardin-Beaumetz,³ and benzoate of sodium by Guaita.⁴ Each writer alleges good results with his peculiar mode of treatment.

It would seem that enough facts have been given to the profession to establish the point that a great many other drugs besides opium, bismuth, chalk, and castor-oil possess real value in the treatment of diarrheal diseases. Yet it is marvellous to see how wedded we have become to these old methods. In looking over a dozen of the most recent text-books on diseases of children, I find the treatment of summer diarrhea described in almost the same words as those used by Eberle, Condie, and Dewees nearly half a century ago.

In the preparation of this paper I have endeavored to ascertain what drugs were most used in public practice in this city. In response to a circular letter sent out I have received information regarding the treatment of summer diarrhea at the following institutions: Nursery and Child's Hospital, Foundling Asylum, Infant Asylum, Infants' and Children's Hospitals on Randall's Island, St. Mary's Hospital for Children, Infirmary for Women and Children, Demilt, New York, Northern, Northwestern, Eastern Dispensaries, Polyclinic, and the Out-door Department of Bellevue and that of Roosevelt Hospital. I

¹ *Op. cit.* ² " *Pest. med.-chirurg. Presse*, " Buda-Pesth, xviii, 1882, p. 806.

³ *Therapeutic Gazette*, 1885, No. 3.

⁴ ARCHIVES OF PEDIATRICS, 1884, p. 380, from *Gazz. degli ospitali*, 1884, 26.

wish here to thank the gentlemen who have been kind enough to furnish me with the particulars sought. The reports of these institutions show that upward of 40,000 children come under treatment annually. Roughly estimating from my own hospital and dispensary experience, I should say that at least 25,000 of these come for diarrheal diseases.

These 25,000 cases are treated as follows:

Bismuth is used largely in every one of the fourteen institutions.

Opium in some form is used everywhere; Dover's powder and paregoric generally. Opium is an ingredient in nearly every compound prescription given. Many physicians have testified that they relied almost entirely upon bismuth and opium.

Castor oil as a preliminary step was much used in six institutions, followed usually by bismuth and Dover's powder.

Castor oil emulsions, with opium, containing from three to ten drops of the oil and about the same quantity of paregoric to the dose, were extensively used at three places.

Chalk-mixture, usually combined with paregoric and some vegetable astringent, is a standard prescription in almost every dispensary, and is largely used.

Calomel, in small doses, is much used at three places.

Rhubarb and soda are largely used in four places, usually in conjunction with opium.

Ipecac is used at two places, aconite at one, pepsin largely at one, sulphuric acid and sulphate of magnesium mixture at one, benzoate of sodium at one, iodoform with opium and pepsin at one, coto bark at one, astringent injections, usually of nitrate of silver, in three places.

One physician begins his treatment with oil to clear out the bowels. Beyond this point he has come to the conclusion "that all drugs are useless, particularly opium." His reliance after clearing the bowels is upon careful feeding.

Morphine and atropine hypodermically had given good

results in some bad cases of cholera infantum in one hospital, though it was admitted that in other similar cases they had been useless.

The following is my personal experience with similar modes of treatment in dispensary cases: I have collected and tabulated from my history-books 300 cases of which I had sufficient data to enable me to draw conclusions from them. They are scattered through three summers, and include all the cases in which the result of treatment was recorded. They were treated, with but few exceptions, by one of the following methods: (1) A compound prescription, consisting of chalk-mixture, paregoric, and some vegetable astringent; (2) the same, preceded by castor-oil; (3) an emulsion of castor-oil and paregoric, containing from three to eight minims of each, according to age; (4) bismuth and Dover's powder, frequently, but not always, preceded by castor oil.

TABLE I.

Three hundred cases treated by opium, bismuth, astringents, and castor oil.

Duration of Treatment.	Cured.	Improved.	Unimproved.	Died.
2 days or less 102	40	44	13	5
3 to 4 days 68	27	23	16	2
5 to 6 days 44	20	17	4	3
7 to 9 days 46	17	12	13	4
10 days and over 40	12	11	9	8
Total 300	116	107	55	22

Inasmuch as twenty-five of the cases treated two days, and ten of those treated from three to four days, were put down as "greatly improved," the probabilities are strong that if they had been followed up a little longer they could have been transferred to the column "cured." This would raise the "cures" to 151, or 50 per cent., and reduce the improved to 82, or 27 per cent.; unimproved, 18.3 per cent.; died, 7.3 per cent.

HOLT: *Antiseptic Treatment of Summer Diarrhea.*

TABLE II.

Showing previous duration of disease, and results in two hundred and eighty-four of the same cases.

Previous Duration.	Cured.	Improved.	Unimproved.	Died.
2 days or less 79	34	24	17	4
3 to 4 days 80	36	29	7	8
5 to 6 days 16	9	4	2	1
1 to 2 weeks 83	27	36	15	5
2 to 3 weeks 5	2	1	1	1
4 weeks and over 21	2	12	6	1
Total 284	110	106	48	20

Under four days' duration, 55 per cent. ; over one week's duration, 38 per cent.

TABLE III.

Showing variety and severity of the same cases.

Diarrhea, severe	93
Diarrhea, moderate	175
Colitis and entero-colitis	28
Cholera infantum	2
Total	298

In 129 cases vomiting was also present.

The results given in the foregoing tables are certainly nothing to be proud of. And yet I venture to affirm that they are quite as good as other men under similar circumstances have obtained with the same methods of treatment, as they would find out for themselves if they took the trouble to record and then analyze their results critically. My own "impressions" regarding the value of many drugs, after using them, I have so often found erroneous when an appeal to cold facts was had, that I have become very loathe to accept the "impressions" merely of others.

Still it must be remembered that many of the above-mentioned were bad cases; and all were seen under the worst surroundings. So I hope no one will for a moment think of comparing them with results obtained among the better classes in private practice.

The dietetic regulations above laid down were carried out as far as practicable, with the single exception that in the earlier cases abstinence from milk was not so strongly and so universally insisted upon. Recourse was had to cold sponging and the cold bath where the temperature was high, to alcoholic stimulants in almost all protracted cases, and to day-excursions upon the water on the Floating Hospital.

Could anything more be done for these unfortunate children than I was doing? was the question I often revolved in my mind, as many of them came back day after day and week after week, while I shifted about from bismuth and Dover's powder to calomel and chalk, and from calomel and chalk to castor oil and opium, etc., often with improvement—too often, alas! but temporary—until patience was exhausted, and they sought advice elsewhere, much to my relief, and I hope to theirs also.

It was a year ago last summer that the monograph of Baginsky, already mentioned, came into my hands. To him I give the credit of starting me in what I believe to be the correct and rational method of treatment. He had used evacuants and antiseptics largely, and commended them. He regarded resorcin as the most valuable antiseptic in intestinal diseases, and, though my own experience has led me to differ with him here, I think his views in the main correct.

Quite an extensive experience with the salicylate of sodium in various dyspeptic disorders of adults led me, without knowing to what extent it had been already used, to try it here.

The following table gives the result obtained with this treatment. The cases were not selected; it was used indiscriminately in all varieties and all stages. In about two-thirds of the cases it was preceded by castor oil. In one or two cases with great nervous irritability a grain of Dover's powder was given once or twice a day for this symptom merely. With these exceptions, no other drugs were used:

TABLE IV.

Showing duration of treatment and results in eighty-one cases treated by salicylate of sodium.

Duration of Treatment.	Cured.	Improved.	Unimproved.	Died.
2 days or less 29	20	6	3	.
3 to 4 days 31	22	6	2	1
5 to 6 days 12	11	0	1	.
7 to 9 days 7	6	1	.	.
Over 10 days 2	1	1	.	.
Total 81	60		6	1

This would give the following results in percentages: Cured, 66 per cent.; improved 19.7 per cent.; unimproved, 7.4 per cent.; died, 1.2 per cent.

This does not quite state the facts in the case. It will be noticed that all of the twenty-one cases except three, in which treatment was followed up for over four days, were cured. Further, in the "improved" column, eight of the twelve patients, taking the drug for four days or less, were marked "greatly improved," and it is highly probable in all of these cases that, had treatment been continued a little longer, a cure would have resulted. Making these changes, as we have done in Table I., we shall have: Cured, 84 per cent.; improved, 7.4 per cent.; unimproved, 7.4 per cent.; died, 1.2 per cent. This certainly does not overstate the results obtained in the foregoing cases.

TABLE V.

Showing previous duration of disease, and results of eighty-one cases treated by salicylate of sodium.

Duration.	Cured.	Improved.	Unimproved.	Died.
2 days and less 22	19	2	1	.
3 to 4 days 18	14	1	3	.
5 to 6 days 8	6	2	.	.
1 to 2 weeks 20	12	7	1	.
2 to 3 weeks 3	3	.	.	.
4 weeks and over 10	6	2	1	1
Total 81	60	14	6	1

Under four days, 49 per cent. Over one week, 40 per cent.

Some of the most striking results seen from the drug were obtained in the cases of long standing. Thus, all three of the cases of three weeks' duration were cured, the average duration of treatment being 3.6 days.

Of the ten cases which had lasted four weeks and over, six were cured, the average length of treatment being 5.6 days. One of the "improved" patients took the medicine for about four days with great benefit, and was well in ten days or two weeks without further treatment. The other had had entero-colitis all summer, did not take the medicine over three days, and was greatly improved, but it was then discontinued, and I learned a week later that the case had relapsed.

The six "unimproved" cases are interesting and deserve something more than mere enumeration, as they illustrate quite well some of the difficulties in treating these cases. Three of the patients were brought to the dispensary but once. All of these were recent cases, and only one was severe. Prompt relief not being evident, physicians were summoned to the house in two cases, and the third patient was taken to another dispensary three days later. I have no means of knowing how much or how little of the medicine was given.

A fourth patient with severe diarrhea, of eight days' standing, the passages being watery in character, took the salicylate for two days without benefit; the drug was continued, but the case was never heard from again.

A fifth patient had had a severe entero-colitis for two or three months. Salicylate of sodium was given for five days, and then opium and astringents were used for four days, but without benefit in either case, and the patient was not traced farther.

The sixth patient took the drug ostensibly for four days without improvement. Subsequent events proved the mother's statements concerning the case to be utterly untrustworthy, and it is extremely doubtful if any directions were carried out as given.

The single fatal case was as follows: It was that of a wasted, wretched child in its fourth severe attack during the summer. The salicylate was given for four days with the effect of controlling the diarrhea; vomiting, however, continued, and the child wasted steadily and died about two weeks later.

TABLE VI.

Showing type and severity of salicylate-of-sodium cases.

Colitis or entero-colitis	23
Diarrhea, severe	18
Diarrhea, moderate	39
Genuine cholera infantum	1
Total	81

In twenty-nine cases vomiting was also present when the patients came under treatment; in many more it was a prominent symptom at the beginning of the attack.

TABLE VII.

Showing duration of treatment and results of forty-four naphthalin cases.

Duration of Treatment.	Cured.	Improved.	Unimproved.	Died.
2 days and less 15	7	3	4	1
3 to 4 days 12	11	.	1	.
5 to 6 days 10	6	3	1	.
7 to 9 days 6	5	1	.	.
Over 10 days 1	1	.	.	.
Total 44	30	7	6	1

Cured, 67 per cent.; improved, 15.8 per cent.; unimproved, 13.5 per cent; died, 2.2 per cent.

The "improved" cases were as follows: One patient was greatly benefitted at the end of five days, but the mother stopped attending, and I heard a week later that the case had relapsed. In the second, a chronic case, the patient was greatly improved after two days; took no more medicine; ultimate recovery in two weeks. A third, also chronic, was doing nicely after two days' treatment, when measles developed, which proved fatal. A fourth

the notes simply state to have been "improved" after one weeks' treatment. A fifth with severe gastro-intestinal catarrh, had diarrhea controlled after two days' treatment, but vomiting continued; the patient could not be found when looked for afterwards to learn the final result. A sixth, also not found, with severe chronic colitis, was greatly improved when last seen, after being under treatment for five days. The remaining patient would not take the medicine in the doses directed. It was stopped after three days, only slight improvement having occurred. Thus it appears that in no case, except possibly the fourth, was there a real test as to the value of the treatment.

In one of the six "unimproved" cases, a recent one, the patient took the drug for four days without any benefit, ultimately recovering at the end of two weeks without further treatment.

A second patient, a boy nine years old, who had had dysenteric stools for a week, after two days' treatment was worse; opium, bismuth, and salicylate of sodium subsequently failed also, and he was then lost sight of.

A third patient, with a moderate diarrhea of two weeks' standing, was no better after taking naphthalin, but was promptly relieved by the salicylate of sodium.

In a fourth case, one of chronic diarrhea of four weeks' standing, the patient took the medicine for two days only; I learned subsequently that he had not been relieved, and that the disease lasted a month longer.

A fifth case was similar, except that the patient recovered in two weeks instead of four.

The remaining case, a severe diarrhea of a month's duration, was not improved after five days' treatment. I learned that no further treatment was employed, and the child died two weeks later.

The only fatal case occurring while under treatment was a severe one, where vomiting was very persistent; there was no relief, and death took place two days after the patient was first seen.

TABLE VIII.

Showing previous duration of disease, and results in naphthalin cases.

Duration.	Cured.	Improved.	Unimproved.	Died.
2 days and less 17	16	.	.	1
3 to 4 days 8	4	3	1	.
5 to 6 days 3	2	.	1	.
1 to 2 weeks 9	6	1	2	.
2 to 3 weeks 2	1	1	.	.
4 weeks and over 5	1	2	2	.
Total 44	7	7	6	1

Less than four days' duration, 56 per cent. ; over one week, 36 per cent.

TABLE IX.

Showing variety and severity of naphthalin cases.

Colitis and entero-colitis	13
Diarrhea, severe	9
Diarrhea, moderate	19
Total	41

Vomiting was present in ten cases ; in several severe.

TABLE X.]

Showing results in twenty-seven cases treated by resorcin.

Duration of Treatment.	Cured.	Improved.	Unimproved.	Died.
2 days or under 9	6	1	2	.
3 to 4 days 11	6	2	3	.
5 to 6 days 1	1	.	.	.
7 to 9 days 4	1	2	1	.
Over 10 days 2	1	1	.	.
Total, 27	15	6	6	.

Cured, 55 per cent. ; improved, 22 per cent. ; unimproved, 22 per cent.

TABLE XI.

Showing previous duration of twenty-five resorcin cases.

Duration of Disease.	Cured.	Improved.	Unimproved.	Died.
2 days or less 10	5	2	3	.
3 to 4 days 5	3	1	1	.
1 to 2 weeks 8	5	2	1	.
4 weeks and over 2	.	2	.	.
Total 25	13	7	5	.

Four days' duration or less, 60 per cent.; over one week, 40 per cent.

TABLE XII.

Showing variety and severity of resorcin cases.

Colitis or entero-colitis	4
Diarrhea, severe	7
Diarrhea, moderate	14
Total	25

Vomiting was present in ten cases of diarrhea when coming under treatment.

The cases treated by resorcin, as regards variety, severity, and previous duration, it will be seen, correspond very closely with those treated by naphthalin and salicylate of sodium. Experimentation with the three drugs was carried on at the same time. Yet it soon became evident, as the tables show, that it was not nearly so effectual as either the salicylate or naphthalan. Castor oil was used as a preliminary step in about the same proportion of cases as with the two latter drugs.

The use of the same drug at the Infant Asylum among a different class of patients led to about the same conclusion, although I have not the figures at hand of the number of cases in which it was given.

This experience with resorcin strengthens me much in the opinion that in the naphthalin and salicylate cases it was not to the initial dose of oil and the subsequent attention to feeding alone that the results obtained in these cases, were due, since exactly the same measures were used in the resorcin cases, and yet 22 per cent. of the patients were unimproved.

TABLE XIII.

Showing length of treatment and results in twenty-eight bi-chloride-of-mercury cases.

Duration of Treatment.	Cured.	Improved.	Unimproved.	Died.
2 days or less 10	2	4	3	.
3 to 4 days 14	3	8	3	.
5 to 6 days 4	1	2	1	1
Total 28	6	14	7	1

Cured, 21.4 per cent.; improved, 50 per cent.; unimproved, 25 per cent.; died, 3.6 per cent.

TABLE XIV. '

Showing duration before treatment of bi-chloride cases.

Duration before Treatment.	Cured.	Improved.	Unimproved.	Died.
2 days or less 5	2	2	1	.
3 to 4 days 7	2	4	1	.
5 to 6 days 2	.	1	.	1
1 to 2 weeks 11	1	6	4	.
3 weeks and over 3	1	1	1	.
Total 28	7	14	7	1

Four days or less, 42 per cent.; over one week, 50 per cent.

TABLE XV.

Showing variety and severity of bi-chloride cases.

Colitis and entero-colitis	22
Diarrhea, moderate	4
Diarrhea, severe	2
Total	28

These bi-chloride cases are the only ones in all my tables given which were selected. In point of time they belong not to my later experience while studying the use of antiseptics, but to an earlier time, being contemporaneous with the castor oil, opium, and astringent cases. Hence, many of them were among the worst ones that were

treated during that period, and they would have made the results given from that period appear still worse than they do had they not been separately considered. The drug was used not as an antiseptic, but more with the idea of its specific action, in cases of colitis and entero-colitis, as recommended by Ringer and others. It was rarely preceded by a purgative to clear out the bowels, or perhaps the cases would have made a better showing.

The cases are introduced for what they are worth, and, although very strikingly beneficial results were seen in some very obstinate cases, still, on the whole, naphthalin and the salicylate of sodium have been in my hands much more successful in exactly similar cases, as a study of the foregoing tables will make evident.

TABLE XVI.

Showing comparative results from different methods of treatment.

	Number	Cured. per cent.	Im- proved. per cent.	Unimproved. per cent.	Died. per cent.
Opium, bismuth, castor oil, etc	300	50	27	18.3	7.3
Salicylate of sodium . .	81	84	7.4	7.4	1.2
Naphthalin	44	67	15.8	13.5	2.2
Resorcin	27	55	22	22	.

It is unnecessary to compare the cases treated in other particulars. The previous duration of the disease in the different classes does not show any marked variation; they average about the same, except that those treated by the salicylate of sodium were of a little longer standing than those treated by opium, astringents, etc. A comparison of the duration of treatment in the cured cases shows the great superiority of the salicylate and naphthalin, particularly in cases of long standing.

It is evident from this table that theoretical considerations of the value of antiseptics in this disease are fully substantiated by the facts. I have included in these tables none but dispensary cases, since I wished to get at the comparative results in the same class of patients.

It was not my intention to introduce reports of special cases, but the following one illustrates so many points that I will give it, although the result was no more striking than was seen in dozens of others. As one man was convinced by it, others may be:

A boy seventeen months old was seen on the fifth day of his illness, with the physician who had treated the case from the beginning. The stools were first thin and yellow, afterward green, with some mucus and curds. Bismuth in four-grain doses every two hours had been used from the beginning, and on the third day mij of deodorized tincture of opium had been added. Although the number of stools had been reduced from ten to five a day, there had been no change in their character, and the child's condition was growing steadily worse.

When I saw him he was really in a critical condition; his temperature had risen to 103° F.; he had begun to vomit quite often, his pulse was rapid and weak, he had had five stools that morning, and was losing ground rapidly. He was dull and heavy, mostly from the opium. I suggested a dose of castor oil, to be followed by the salicylate of sodium, gr. ij, every two hours. But my friend said: "He is so weak that it seems to me it would be dangerous to do anything to give him any more stools." He consented to give the treatment a trial in view of the hopelessness of the case under the present methods.

I saw him two days later. He greeted me with the remark, "Doctor, I am a complete convert." During the afternoon and night after I saw the case the boy had seven passages. In the next twenty-four hours he had two of nearly normal character, and a slight catarrhal diarrhea lasted four or five days more, by which time he was well. I never saw a patient gain more rapidly.

The objections raised against the oil in the case related are no doubt felt by many, so prevalent is the idea that the great object of treatment is to arrest the discharges. The opium and bismuth here *had* reduced the number of stools from ten to five a day, and yet the child was getting worse all the time. What was the explanation here of

the rise of temperature to 103° , the supervention of vomiting, the great prostration, and the rapid and weak pulse? To my mind, these were toxic symptoms dependent on the retention in the bowels of the products of the decomposition of food and altered secretions.

Is not the rational treatment, then, to clear out the intestines as promptly and thoroughly as possible, and then address our energies towards stopping further decomposition? In other words, to treat the cause and not the result.

How should the antiseptics be administered?

The salicylate of sodium I have been accustomed to prescribe in doses of from one to three grains every two hours, according to the age, from three months to three years. In these doses the aqueous solution is tasteless, and can be readily given in the food or drink. I have never seen it produce vomiting, but often have seen severe and persistent vomiting controlled by it.

Naphthalin, although possessing a strong odor, is not disagreeable to the taste. On account of its insolubility, it is best given to children rubbed up with some inert powder, like sugar of milk. It should be used in a little larger doses than the salicylate—*i. e.*, j to gr. v in young children, according to the age.

Resorcin must be used in smaller doses, gr. $\frac{1}{2}$ to gr. ij, at corresponding ages. It is bitter, and not so easily given, though freely soluble in water. The bi-chloride was used in doses of gr. $\frac{1}{120}$ to $\frac{1}{100}$, but, even in these doses, I have more than once seen it produce vomiting.

In all cases I have insisted upon the antiseptic being given at short intervals, as many small doses are much more likely to succeed than a few large ones.

From the foregoing discussion the following conclusions are drawn:

1. Summer diarrhea is not to be regarded as a disease depending upon a single morbid agent.
2. The remote causes are many, and include heat, mode of feeding, surroundings, dentition and many other factors.
3. The immediate cause is the putrefactive changes

which take place in the stomach and bowels in food not digested, which changes are often begun outside the body.

4. These products may act as systematic poisons, or the particles may cause local irritation and inflammation of the intestines.

5. The diarrheal discharges, *at the outset* at least, are to be looked upon as salutary.

6. The routine use of opium and astringents in these cases is not only useless, but, in the beginning particularly, they may do positive harm, since, by checking peristalsis, opium stops elimination and increases decomposition.

7. I do not deny nor undervalue opium in many other forms of diarrhea than the one under discussion.

8. Evacuants are to be considered an essential part of the antiseptic treatment.

9. Experience thus far leads me to regard naphthalin and the salts of salicylic acid as the most valuable antiseptics for the intestinal tract.—*New York Med. Jour*

ARCHIVES OF PEDIATRICS.

INDEX TO VOLUME III.

	PAGE
A BSCESS, of brain	624
Abscesses, cold	316
subcutaneous, in scrofulous children; in relation to tubercu-	
losis	60
Adenoma	644
Albuminuria, scarlatina, and the pre-albuminuric stage	242
Alcohol, harmful effects upon system of children	372
Anchylosis, Radio-Ulnar, articulation	124
Anemia, splenic	61
Aneucephalus,	566
Anterior fontanelle, involution of	369
Antipyrine, in juvenile therapeutics	374
treatment of children	595
Aphosia	312, 504
Appomis, involution of	241
Arsenic, producing bronzing of skin	591
Arthritis, acute, purulent and the characteristic micrococcus	126
suppurative	123
Artificial feeding	321, 427, 435
Asphyxia in the new-born	588
Assault and rape; report of twenty-one cases, with comments	269
Astragalus, removal of	379
Atrophy, infantile, of extremities	500
muscular	184
(752)	

BALSAM copaiba in gonorrheal ophthalmia	555
Bladder, distension of	125
complete extroversion of operation for	315
Bronchial cyst	189
Bright's disease, treatment of	587
Bronchial adenopathy	618
Bronchitis, acute, infantile	165
Broncho-pneumonia; infections and their microbes	442
micrococcus of	307
treatment of	596
Bubo, sympathetic, in an infant	319
Bullous, eruption	183
 CARCINOMA of kidney	443
Cardiac disease	116, 129
Carotid artery; wound by fish-bone	256
Catarrh, intestinal, treated by salicylic acid	177
stomach, treated by sulphate of iron	112
Cephalhematoma, intra-cranial	254
Cholera, Asiatic, anatomical and experimental investigations concern- ing	562
infantum, therapeutics of	227
Chorea	296, 306, 652
nature and treatment	555
treatment of	599
treatment by arsenic, producing bronzing of skin	591
cimicifuga racemosa	560
Club-foot, treatment of	229
Cocaine, action upon children	366
Cod-liver oil, how to administer	552, 592
Colpitis, infections, epidemic	439
Conjunctivitis, causes, prevention, treatment	310
Convulsions, infantile, morphia in	430
Co-ordination, absence of faculty of	594
Cough, nocturnal	609
Croup, papayolin in	589
significance of the term from a clinical standpoint	377
treatment of	111
treated by strong alkaline vapor, trypsin and intubation of larynx and diphtheria	560
identity of	602
identity of	505
Curvature of spine, lateral	444
 DIARRHEA , chronic, case of	598
Digits, re-union of severed	626
supernumerary	622
Dentition, so-called diseases of	228
pathology of	486

Dermatoses, toxic	311
Diabetes, mellitus	295
Diarrhea of infants	449, 513
summer, etiology and treatment	395, 631
treatment of	556, 424
Diphtheria	224, 236, 423, 602, 615
individual predisposition to	238
management of	237
spread of, by personal communication	225
therapeutics and statistics of	553
tracheotomy	318, 368
treatment	300, 594
recent therapeutic agents in the treatment of	110
treated by galvano-cautery	600
treatment of by hydro-carbons	287
tincture iodine	179
sapayotin	226, 589
sodium aere	112
of pharynx, treatment of	601
Diphtheritic croup, intubation of larynx in	306
membrane in bronchus	301
Diphtheria and croup, identity of	505
Diphtheritic paralysis	118
therapeutics and pathology of	484
treated by strychnia	376
Diseases of childhood in general	108
children, why special study	550
E ARACHE	611
Ear, disease of, death from neglect of	186
Ear, maggots in	253
external, congenital malformation of	622
Eczema, infantile	604
Elbow, sprain of	122
Empyema, case of	656
caused by swallowing piece of glass	251
following scarlatina	25
Enteritis, acute and chronic, temperature of abdomen in	245
Epiphyses, injury to	508
Esophagotomy for foreign bodies	620
Erysipelas, in infants, treatment of, by white zinc paint	201
External application in childhood, value of	470
Extroversion of bladder, congenital, operation for	315
F EBRICULA, epidemic	241
Feeding of infants	206, 434
artificial	321
common standard	427

Feeding of infants, study of	530
young children, artificial	435
Fissure of arms	628
supra-umbilical, congenital	565
Foreign body in alimentary canal	248
throat	248

GERM-VALGUM of rachitic origin, treatment of,	249
Glomeruli of kidneys, significance of in primary inflammation of these organs	605
Glottis, spasm of in Rickets	499
a symptom of gastro-intestinal trouble	561
Gonorrhea in the young	254
Gonorrheal peritonitis	641

HARE-LIP, congenital, operation for	316
Heart-clot	643
Hemateuresis and melanosis in the new-born	240
Hemiphyia, spastic	504
Hemorrhages into the large cavities in the new-born	234
intra-cerebral	499, 501
Hemorrhagic syphilis in the new-born	607, 612
Hernia, some statistics of in children	657
strangulation, in infants	313
umbilical, congenital, extending into the cord	511
Hip disease in childhood	4, 86, 152, 263, 357, 456
dislocation of	124
resection of	250
Hodgkins' disease	502, 574
Hydrocephalus, chronic, exposure to sun as a means of curing	488
Hymen, defective development of	267
Hypertrichosis	243
Hypertrophy pseudo	184
Hysterismus	608

INCONTINENCE of urine	119
treatment of by rhue aromatica	181
scutellaria lateriflora	290
Infantile diseases, diagnosis of	177
eczema	604
palsy	581
paralysis, case of	597
syphilis, congenital	617

Infectious diseases, spread of, in hospitals	369
Intestinal obstruction in the new-born	297
Intubation of the glottis	113
larynx	187, 215
in diphtheritic croup	306
Intussusception	509
Involution of anterior fontanelle	369
Irregularities of locomotion in children	257
Irrigation, intestinal, value in intestinal disease	432
JOINT, inflammation complicating scarlatina	308
KERATOSIS sebacea	243
Kidneys, absence of one and carcinoma the other	443
carcinoma of	443
displaced, accompanying a sacral spina-bifida	313
Knee, case by lotomy for deformity of	256
LAPAROTOMY	379
Laryngeal stenosis, a cause of pulmonary hyperemia	237
Laryngismus stridulous	440, 584
Leucemia	503
Leukemia, lymphatic	244
Litholapaxy	185
MALARIA in children	304
Malformation, congenital	625
Malposition of viscera in a new-born child	1
Maternal impressions	623
on fetus in utero	551
Measles, absence of micro-organisms in	307
contagiousness of	614
morbidity and mortality of	296
period of, incubation of	614
predisposition to	370
prophylaxis of	370
transmission of	486

Melenia in the new-born	240
Membranous cast of trachea and larynx retained several months . .	604
Monster	251
Monstrosity	553
Morphia, hypodermically in the convulsions of children	592
in convulsions of children	430
poisoning in an infant	181
Mortality among infants	552
of children in Buda-Pesth in 1876-1881	431
Mothers' milk, composition of, when children have rachitis	365

NEEDLE swallowed and passed by an infant	248
Nephrectomy	621
Nephritis, primary, in a young infant	183
Nerves of ear	623
Noma, pathogenesis and treatment of	380
Nursing children by their mothers	551

OPHTHALMIA, contagious in institutions	222, 286
Gonorrheal, balsam copaiba in	555
monatorum	500
etiology, prophylaxis and treatment	491
Ophthalmum, blenorrlhea in new-born, etiology and prophylaxis of .	290
Orthopedic surgery	314
Osteoclosia, Osteotomy and Osteotomy in deformities of bones and joints	247

PARALYSIS, cerebral, in children	557
different forms of, in young children	10
diphtheritic	118
infantile, cured by electricity	288
pathological anatomy of	558
pseudo, syphilitic	299
Paraplegia, spastic	105
Papayotin, effects of, upon croup and croup membrane	589
diphtheria	589
Pemphigus, epidemic	378
Penis, wounds of	65
Pericarditis	373
Peritonitis, intestinal obstruction	297
Phenic acid, dangers of, in new-born	189
Phimosis, with unusual reflex symptoms	624
Phthiriasis, Pathebrarum	380
Pleurisy, purulent, treatment of	445
Pleuritis, treatment of	593

Pneumonia, cerebral, reduction of high temperature	76
croupous, congenital	303
tobar	506
Poisoning by belladonna	590
Fowlers' solution	590
morphia, in an infant	181
nux vomica	590
opium	591
whiskey	591
Polypi, rectal	628
Pott's disease, nervous symptoms in	565
Proceedings of section in pediatrics, International Medical Congress, Copenhagen, 1884	30
Prolapsus of rectum, a new cause of	126
Prophylaxis of small-pox	665
Psoriasis, general, plantaris and palmaris	502
Purpura, congenital	185
 RACHITIS	584
Rape	321
Raynaud's disease	567
Rectal, polypi	628
Rectum, prolapsus of, a new cause of	126
Rheumatism in early life	292
Rickets, spasm of glottis in	499
Roller-skating for girls	223
Rubella (Rötheln)	676
 SALT-SOLUTION , infusion, method of infusing	289
Sarcoma of cerebellum	242
eyeball, enucleation of	624
os innominata	240
scalp	125
Scarlatina and the puerperal state	560
caused by cow's milk	487
complications of	239, 308
milk as a preventive of renal albuminuria	489
predisposition to	370
prophylaxis of	370
observations on the treatment of	113
sine exanthemata	497
Scarlet fever, pathological anatomy of	610
secondary infection in	609
Sclerema of new-born	188
Scabosis	371
Scrofula, sea-bathing in	597
Scurvy in a child	304
Salicylate-soda in infantile diarrhea	424

Small-pox, prophylaxis of	665
Spastic paraplegia	105
Spinal bifida, sacral	313
cord, tumors of,	367
Spine, lateral curvature of	253
Stomach, catarrh of, in little children, sulphate of iron in	227
dilatation of, in children	182, 437
Surgery of the genito-urinary organs in childhood	65, 193, 385, 520
Swallowing a two-cent piece	623
Synovitis, chronic, of knee, treatment by opening the joint	123
Syphilis, congenital	495
hemorrhagic, in the new-born	607, 612
infantile	144
congenital	617
transmission of, from infant to nurse	480

T ABES	235
Tarsotomy, posterior, in one case of club-foot	320
Temperature, a new method of taking	489
of abdominal, in acute and chronic enteritis	245
Tetanus in infants	494
Tonsils, enlarged, constitutional effects of	252
Torticollis, congenital	302
Tracheotomy	256
after treatment of	488
in diphtheria	318, 368
seventy-seven cases of	317
Transaction of section in pediatrics, Society of Naturalists and Physicians, Strasburg, 1885	365
Transfusion of a salt solution	289
Trypsin in croup	560
Tuberculosis, acute miliary, in an infant	298
anatomy and statistics of	493
infection of	440
of mesenteric glands	616
Tubercular meningitis, successful (?) treatment of	590
ulcerations of intestines	616
Tumor, sacral, composed of a spina bifida and a kidney	313
Tumors of the spinal cord in children	367
Typhoid fever, symptoms and treatment of	436, 612

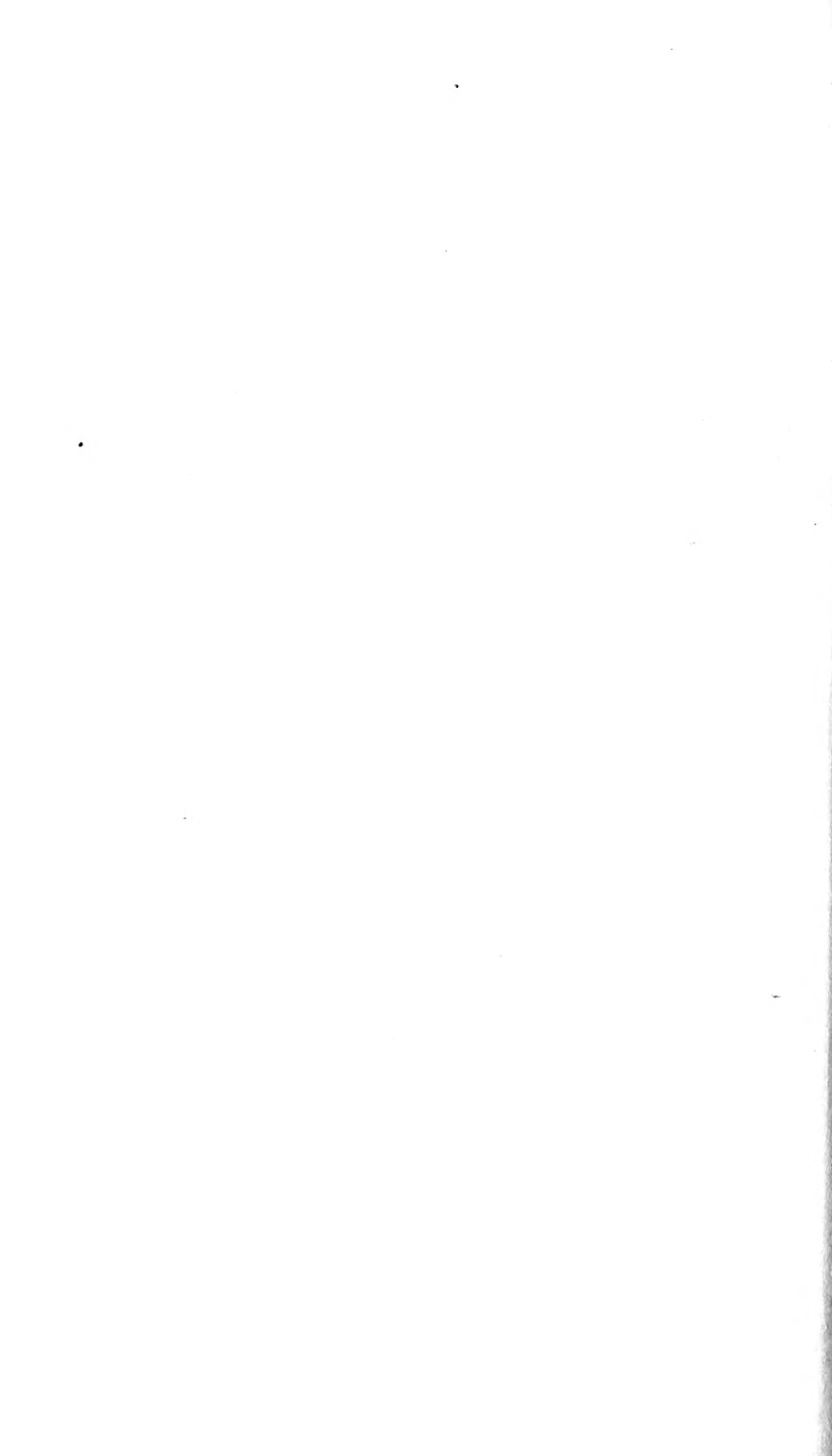
U LCKER, epithelial, due to prolonged use of the bromides in large doses	626
Umbilical cord, short, delaying labor	552
Uremic phenomena following scarlatina	587
Uretus, anomalous	421
Urticaria, from eating muscles	121

VACCINATION	230
Vaginitis in children	297
Varicella	507
diagnosis of	94
Variola	429
Vermiform appendix, inflammation of	562
Vinegar, antiseptic action of, on diphtheria	594
Vulvo-vaginitis, micrococcus of	507
WEANING	490
White-swelling, treated by Scott's apparatus	291
Whooping-cough, inhalation of cocaine in	588
predisposition to	370
prophylaxis of	370
treatment of	482
treated by insufflation	483
cocaine	180, 225
insufflation of quinine	486
Worms and verminous affections	441
Wound of common carotid by a fish-bone	256
Wounds of penis	65

CONTRIBUTORS TO VOLUME III.

Abercrombie, John.
 Ashby, Henry.
 Atkinson, I. E.
 Blackader, A. D.
 Brush, E. F.
 Davis, S. Austin.
 Forchheimer, F.
 Hanscome, W. S.
 Harrison, G. B.
 Hatfield, M. P.
 Haven, H. C.
 Holt, L. Emmett.
 Keating J. M.
 Knickerbocker, F. H.
 Lee, R. J.

Marshall, I. N.
 Morris, J. L.
 Phillips, John.
 Rotch, T. M.
 Shank, A.
 Sinkler, W.
 Smith, J. Lewis.
 Smith, Noble.
 Standling, Wm.
 Stout, S. H.
 Swasey, Edward.]
 Walker, Jerome.
 Waxham, F. E.
 Willard, De Forrest.
 Wright, G. A.



RJ Archives of pediatrics
1
A8
v. 3

Biological
& Medical
Sciences

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE

